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New Orleans District

A CULTURAL RESOURCES SURVEY OF ARLINGTON REVETMENT AND LSU BERM LEVEE IMPROVEMENT ITEM, EAST BATON ROUGE PARISH, LOUISIANA

FINAL REPORT

JULY 1993

MUSEUM OF GEOSCIENCE
Louisiana State University
Baton Rouge, Louisiana 70803

Prepared for

U.S. ARMY CORPS OF ENGINEERS
New Orleans District
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This report describes the results of a cultural resources investigation on the east side of the Mississippi River within a reach between M-228.1 to 222.2-L. The project area included survey of unrevetted portions of the batture side of the levee, as well as survey of the land side for the Berm. No cultural resources were encountered in the batture portion. On the land side of the levee, three previously unreported sites were encountered: 16EBR72, 16EBR73, and 16EBR74. Additionally, historical research was conducted on the Cottage Plantation, previously reported as 16EBR57. Three other house sites and the site of a chapel were also noted within the project area, but not reported as archeological sites. Laurel Plantation (16EBR72) and the Cottage Plantation were designated eligible for the National Register of Historic Places. Also, five occupied standing structures, none of which are eligible for the National Register, were found in the project area. The report investigates the history of Cottage, Laurel, Hope Estate, Arlington, Nestle Down and McHatton plantations. Portions of all of these plantations were in the project area. (continued)

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19. ABSTRACT

Also, geomorphological investigations were conducted in two transects in separate portions of the project area. These investigations attemped to discover if a soil horizon existed on the batture side of the levee that might contain former living surfaces that have since been covered by sediment deposition on the batture.

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT CORPS OF ENGINEERS
P.O. BOX 60267
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REPLY TO ATTENTION OF

September 23, 1993

Planning Division
Environmental Analysis Branch

To The Reader:

This cultural resource effort was designed, funded, and guided by the U.S. Army Corps of Engineers, New Orleans District, as part of our cultural resource management program. The report documents the results of a combined cultural resource survey and testing of a proposed 1990 "Arlington Revetment and LSU Berm Levee Improvement" project, East Baton Rouge Parish, Louisiana. Since that time, the Arlington Revetment project has been cancelled and the LSU Berm Levee project has been substantially reduced in size. Through consultation with the Louisiana State Historic Preservation Officer, we have determined that the current LSU Berm Levee project will not affect cultural resources.

We concur with the authors' recommendation that Laurel Plantation is potentially eligible for nomination to the National Register of Historic Places both architecturally and archeologically. Archeological investigations were not conducted at the nearby Cottage Plantation; however, it has similar research potential and may be regarded as potentially eligible for nomination to the National Register of Historic Places.

Michael E. Stout
Authorized Representative
of the Contracting Officer

Robert A. Buisson, Jr.
Acting Chief, Planning Division

A CULTURAL RESOURCES SURVEY OF ARLINGTON REVETMENT AND LSU BERM LEVEE IMPROVEMENT ITEM, EAST BATON ROUGE PARISH, LOUISIANA

FINAL REPORT

by

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Prepared for
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New Orleans District

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Museum of Geoscience
Louisiana State University
Baton Rouge, Louisiana

October, 1993

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

LIST OF FIGURES (CONTINUED)

LIST OF FIGURES (CONTINUED)

LIST OF FIGURES (CONTINUED)

LIST OF FIGURES (CONTINUED)

LIST OF FIGURES (CONTINUED)

LIST OF TABLES

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Contributions to the text of this report was made by several individuals, all of whose contributions were excellent. They were Joann Mossa, Todd Smith, Brady Banta, Malcolm Shuman, Jeff Treffinger, Melissa Wiedenfeld, and Jill-Karen Yakubik. Much of the text was aided by editing and insights provided by Sharon Newman.

CHAPTER I

INTRODUCTION

This report presents description and analysis of archeological, historical, and geomorphological research for portions of land near the east bank of the Mississippi River in East Baton Rouge Parish, Louisiana. This project was conducted for the U.S. Army Corps of Engineers, New Orleans District (See Appendix B). The research took place in three distinct project easements between river miles M-228.1 and 222.2-L. One portion of the project was a survey of approximately 4.3 mi on the land side of the existing Mississippi River levee for the construction of a berm to alleviate seepage beneath the levee. This portion of the project, known as the LSU Berm Levee Improvement Item, will be referred to as the LSU Berm. The other two survey corridors were for proposed revetments on the river's current bank line totalling 4.9 mi located both upstream and downstream of an already revetted portion of the bank line known as the Arlington Revetment. Figure 1 presents the location of the project areas where research was conducted. Total acreage surveyed for berm construction was 104.2. The segments of the Arlington Revetment surveyed were 118.8 ac total. A total of 223 ac was surveyed.

Preparation for the proposed revetment will directly impact the river's bank line. Sections will be cleared of vegetation in a corridor 200 ft wide running adjacent to the river. Slope grading will remove the upper bank line in a 100 ft corridor adjacent to the edge of the river bank. Within these corridors, any cultural remains in 200 horizontal feet and 10 vertical feet are likely to be destroyed. This preparation will be performed so that a continuous, articulated concrete mattress can be laid along the river bank.

The berm construction referred to as the LSU Berm Improvement is a possible alternative construction project to alleviate the seepage in the area beneath the Mississippi River Levee during periods of high water. Such a berm is essentially a clay blanket that may require the landward setback of the River Road (Louisiana Highway 327). A corridor of approximately 200 ft wide adjacent to the River Road would be affected by such construction.

Field work took place throughout portions of spring, summer and fall, 1989. The majority of archeological surveying occurred in April and May, although additional testing took place in July and August. Soil coring portions of the project area as part of geomorphological investigations were conducted in September and October.

This report will be presented in the following manner. Chapter II contains a discussion of the flora and fauna of the project area. Chapter III discusses the geomorphology of the Lower Mississippi River in the project area. Special geomorphic investigations in the project area are addressed in Chapter IV.

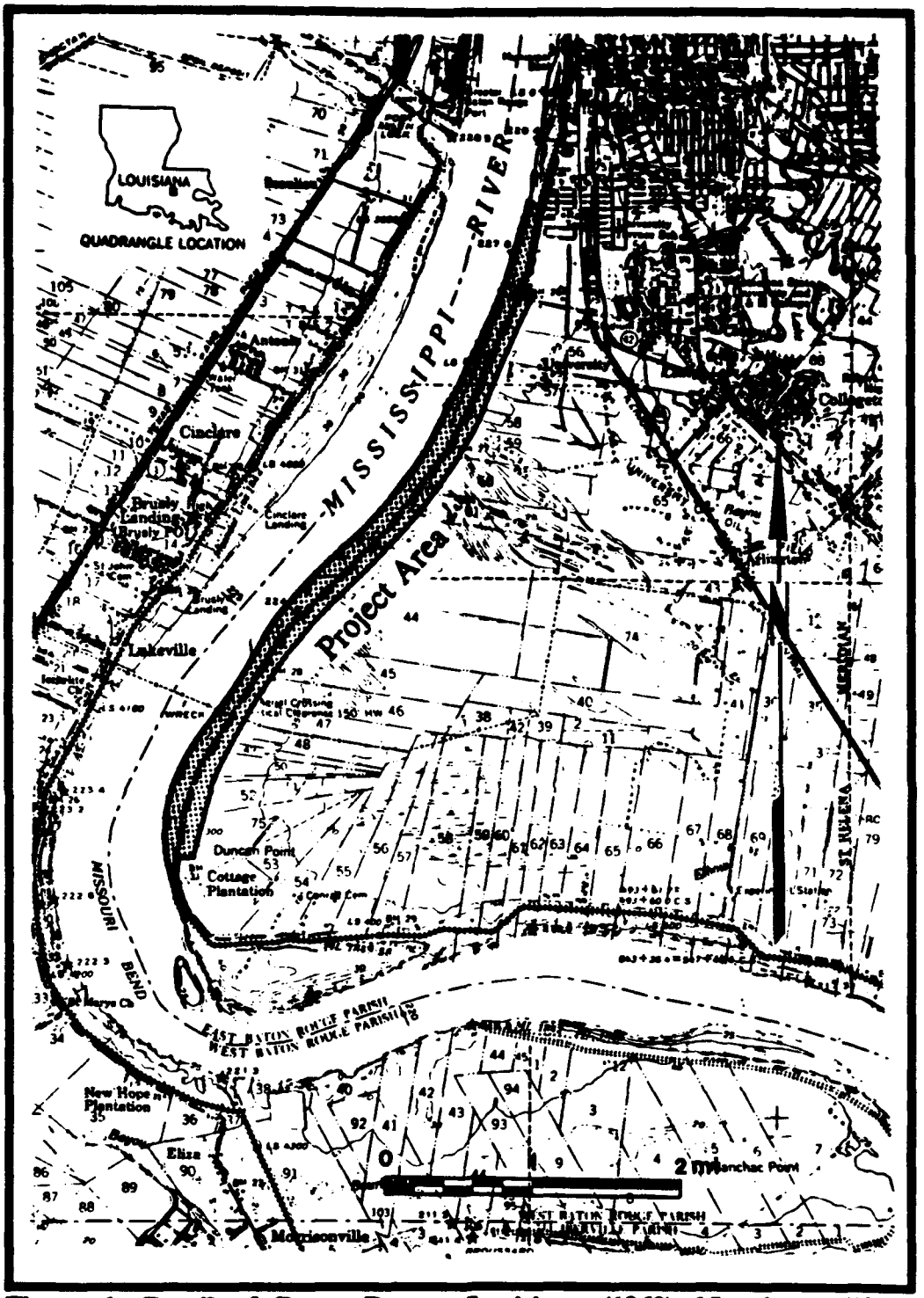


Figure 1: Detail of Baton Rouge, Louisiana (1963) 15 minute USGS topographic quadrangle showing location of project area

Chapter V recounts past archeological and cultural resources investigations in the region. Chapter VI describes the general prehistoric culture of the region while Chapter VII presents a history of the project area. Chapter VIII reviews the history of property ownership and land use. Chapter IX contains a statement of the research design and methodology employed during the survey. Chapter X discusses the results of the survey. Analysis of historic artifact are presented in Chapter XI. Chapter XII is the summary of the findings and recommendations of the survey.

CHAPTER II

FLORA AND FAUNA OF THE STUDY AREA

Because the primary landform in the area is a floodplain, the diversity of flora and fauna within the project area is rather limited if compared to an area with a variety of landscapes. The Pleistocene terrace to the east of the project area defines the natural edge of the Mississippi River Valley and runs northwest to southeast. Prior to the development of manmade levees, the terrain was subjected to recurrent flooding. The frequency of inundation, types of sediment, and small changes in elevation are the primary factors that contributed to what slight natural topographic relief in the vicinity of the project area. The artificial levees, however, provide for considerable artificial topography and have cut off the landward side of the project area from the inundations that once occurred.

Flora

Currently, the willow *(Salix spp.)*, is the dominant type of tree on the banks of the Mississippi River and in portions of the batture. Additionally, oaks (*Quercus spp.*) are to be found, as well as occasional sweetgums (*Liquidambur styraciflua*). In the more poorly drained portions of the batture, palmettos (*Sabal sp.)* and other forms of water tolerant vegetation are frequently seen. Before the area on the land side of the levee was cleared for agriculture, these same species no doubt also grew in this portion of the study area. Presently, the primary function of landward side of the project area is pasture land, with only occasional stands of trees. Because much of the land has been cleared, but allowed to grow back in a fallow state, secondary vegetation dominates large portions of the project area. Within this setting, such vegetation as poison ivy *(Rhus radicans)*, and greenbrier *(Smilax rotundifolia)* are abundant.

Prehistorically, cane groves (*Arundinaria gigantea*) would have likely grown throughout the region of the project area. This cane was remarked upon frequently by the early European explorers in the Lower Mississippi Valley (see McWilliams 1981). Bald cypress (*Taxodium distichum)* would have also been present in great number. These trees were cut down to clear the land for agriculture and to procure building material in the late eighteenth and nineteenth centuries.

Fauna

Currently, the faunal community within the vicinity of the project area is surprisingly rich for an area so close to an urban environment. Prehistorically, in a much less disturbed environment, this richness was no doubt even more pronounced.

Presently, signs of mammals such as white tail deer (*Odocoileaus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), rabbit (*Sylvilagus aquaticus*), and perhaps fox (*Vulpes fulva*) can be encountered in portions of the project area. Prehistorically, black bears (*Euarctos americanus*), American beaver (*Castor canadensis*), and bobcat (*Lynx rufus*) were also probably in the vicinity of the project area (Lowery 1974).

Bird life is currently somewhat limited in and around the project area due to changes in the natural habitat. Horned owls (*Bubo virginiana*) were heard in the wooded portions of the project area and red tail hawks (*Buteo jamaicensis*) were seen on a few occasions. Non-raptorial birds were also seen, with snowy egrets (*Egretta thula*) especially common in portions of the study area where there were cattle. Other species that are no doubt present are pintail (*Anas acuta*), canvasback (*Anas vausineria*), and mourning dove (*Zenaida macroura*). Prehistorically, before changes in habitat took place, Canadian goose (*Branta canadensis*) and wild turkey (*Meleagris gallopavo*), among others, were likely to have been in the area.

Reptile life is fairly abundant in the project area with such varieties as the water snake (*Nerodia fasciata*), garter (*Thamnophis spp.*), cottonmouth (*Agkistodon piscivorus*), southern copperhead (*Agistrodon contortrix*) and snapping turtle (*Cheldra sperpentina*) as inhabitants. Prehistorically, the American alligator (*Alligator mississippiensis*) was likely to have joined this list in great abundance. Alligators are still found in the Baton Rouge area today, but in far less number than would have been the case before European settlement. Amphibians, such as bullfrogs (*Rana catesbiana*), green treefrog (*Hyla cineria*), and American toads (*Bufo americanus*) are in abundance within the project area and would have likely been so prehistorically.

Fish life in the vicinity of the project area would have likely been prolific and varied in the region of the project area before industrial and urban development. Representative species would have been alligator gar (*Lepisosteus spatuala*), bowfin (*Amia calva*), freshwater drum (*Aplodinotus grunniens*), buffalo fish (*Ictiobus cyprinellus*), and catfish (*Ictalurus furcatus*).

Other faunal species in the project area are mollusks such as the brackish water clam *(Rangia cuneata)* and fresh water mussels *(Unio spp.)*. Fresh water mussel shells are currently present in the Mississippi River and can be found on the banks on occasions when water levels recede. Rangia, however, require a saline content in their aquatic environment in order to flourish. Given the volume of fresh water in the Mississippi River in is doubtful that this species ever proliferated within the Mississippi River itself it the vicinity of the project area. The backswamp area to the east of the project area, however, may have presented a different situation. Middens of Rangia shell, a product of prehistoric Indian occupation, have been reported at archeological sites along Bayou Fountain: the Knox Site (16EBR4), the Lee Site (16EBR51), and the Kleinpeter Site (16EBR5). These middens would seem to indicate that the environment of the floodplain

east of the current channel of the Mississippi River must have been brackish enough at one time to support this species. Presently, Rangia are not found in this area.

* * * * * * * * * * * * *

The natural environment of the project area has been impacted by a combination of agricultural, industrial, and urban development since the eighteenth century. Levees have been built; lands cleared; crops planted; structures and roads built; and concentrated petrochemical facilities placed relatively near the project area. All of this has meant that the natural environment of the region has been modified greatly and in a variety of ways. The area is no longer subjected to inundation, but despite its proximity to a large urban area, it is very lightly settled.

The major historical land use of the majority of the project area has been cultivation or pasture. Currently, much of the project area on the landward side of the levee is fallow pasture with scrub vegetation that covers large areas of once cleared land. The berm improvement portion of the project area on Louisiana State University property is the only portion of the project area that is now cultivated.

CHAPTER III

GEOMORPHOLOGY OF THE LOWER MISSISSIPPI RIVER IN THE PROJECT AREA

Flood control and navigation of the Lower Mississippi River have required repeated engineering projects by the U.S. Army Corps of Engineers. These projects include the construction and improvements of artificial levees in response to flooding, the introduction of a number of human-induced cutoffs in the 1930's, and a program of bank protection using articulated concrete mattress revetment to prevent the recession of caving banks toward the artificial levees. Underseepage of the levees occurs during high water causing sand boils to develop in the point bar deposits. Sand boils are springs that bubble through a river levee ejecting sand and water as a result of water in the river being forced through permeable sands and silts below the levee during flood stage (Bates and Jackson 1980).

Since human settlement and resource utilization are related to landform distribution and geomorphic processes, the regional and site geomorphology of this area forms an important component for more detailed assessments of the cultural resources within the proposed project area. The Lower Mississippi River basin in the vicinity of the project area is bounded to the west and east by artificial levees. North of the project area is a line of 20 to 60 ft high bluffs.

Geologic-physiographic units in the region of the proposed project area include the Prairie terraces complex which is late Pleistocene in age, loess which caps the Prairie terraces complex, alluvium of local stream valleys, and alluvium of the Mississippi River alluvial valley. The Baton Rouge fault zone displaces late Pleistocene sediments in the vicinity of the project area. The surface of the terraces slope gently to the south-southeast and the overall drainage pattern is toward this direction. The Mississippi River alluvial valley is entrenched in Pleistocene deposits. The floodplain here consists of vertical and lateral accretion features and has been extensively modified by humans. Descriptions of the major geological and surficial natural features follows.

Prairie Terraces

The original concept of the Prairie terraces was that this complex represented a single merging river and coast-trending surface (Fisk 1938; 1940; 1944). In southwestern Louisiana revised descriptions divide the terrace complex into three sublevels. Two of these sublevels trend along alluvial valleys and the lower of the two coalesces with a broad coast-trending surface. The third and lowest sublevel exhibits only coast-trending expression (Snead and McCulloh 1984). Such sublevels were distinguished in maps of the Quaternary terraces of southwestern Louisiana (Smith and

Russ 1974; Kesel 1980-1982) that were based in part on studies in the Red River Valley (Russ 1975) and the Gulf coastal plain (Doering 1956). Multiple surfaces have also been recognized in southeastern Louisiana, (Mossa and Miller 1986), but have not been documented regionally.

The fill beneath the Prairie terraces in south Louisiana consists predominantly of fluvial and deltaic material. The age of the deposits is regarded as late Pleistocene; specifically, the deposits are either mid-Wisconsin or Sangamon or a range within this span. These estimates have been based on inferences of sea level and criteria such as the preservation of geomorphic features, the degree of soil development, and the presence of only the Peoria Loess. The type and size of depositional and erosional features, paleobotanical findings, and radiometric dates of organic material that have been reported as Farmdalian also provide data to buttress these estimates (Fisk 1944; McFarlan 1961; Saucier 1974; Delcourt and Delcourt 1977; Otvos 1980; Alford et al. 1983, 1985; Miller et al. 1985; Miller et al. 1986).

Loess

Loess is a windblown deposit found along the Mississippi Valley. According to Bates and Jackson (1980), it is a homogeneous, commonly nonstratified, porous, friable, slightly coherent, usually highly calcareous, blanket deposit consisting of silt with subordinate grain sizes ranging from clay to fine sand. Loess in the Mississippi Valley is generally yellowish-brown, often contains shells, bones, and teeth of mammals, and stands in steep or nearly vertical faces. Loess is transported from sparsely vegetated surfaces that include alluvial valleys, outwash plains, and deserts to more stable vegetated landscapes. The noncalcareous nature of the loess away from the river is the result of a slower rate of deposition that allows the leaching rate to exceed the rate of accumulation. The greater percentages of clay and sand mixed with the silt, where rates of deposition are slower, are caused by pedogenic mixing with underlying material.

At one time, some researchers including Russell (1944) and Fisk (1944) did not accept the eolian theory of origin. They believed the deposits were derived from backswamp alluvial deposits by a process called "loessification." This involved backswamp deposits eluviated of clay content and leached of carbonates which were deposited at lower levels, and then receiving contributions of snail shells from erosional slopes by creep and wash. This confusion can be in part attributed to the occurrence of reworked loess throughout much of the Lower Mississippi Valley. The reworked loess typically contains stringers of sand and, in some instances, small pebbles, indicating a colluvial origin. However, there are several locations in the Lower Mississippi Valley where loess is not reworked and colluvial processes are insignificant. A number of researchers have since pointed out such differences between reworked and *in situ* loess in their respective project areas (Spicer 1969; Kress 1979; Alford et al. 1983; Miller et al. 1985; Miller et al. 1986).

Loess stratigraphy has recently been used to assign minimum and relative ages to different surfaces and stratigraphic sequences. The most detailed and extensive work on loesses in the Lower Mississippi alluvial valley was conducted by Miller and colleagues (Miller et al. 1985; Miller et al. 1986). Although two loesses occur in south Louisiana, the Prairie terraces complex is veneered only by Peoria Loess. The older loess has been dated in Mississippi by thermoluminescence at 95,000 to 75,000 B.P. (Johnson et al. 1984) and 85,000 to 76,000 B.P. (Pye 1985). Radiocarbon dates of the Peoria Loess are late Wisconsinan, between 22,000 and 20,000 B.P., in Louisiana (Otvos 1975), and thermoluminescence dates in Mississippi range between 22,000 and 9,000 B.P. (Johnson et al. 1984; Pye 1985). Loess thickness is generally a function of distance from source, in this case the ancestral Mississippi River (Spicer 1969; Miller et al. 1985). Loess ranges from six to nine feet in thickness on the Prairie terraces in the Baton Rouge area. A number of field and laboratory criteria have been established to distinguish the loesses (Miller et al. 1985). The Sicily Island loess is more highly weathered and commonly has hues of 7.5YR in contrast to the predominant 10YR hues of the Peoria Loess. The presence of *in situ* loess mantles, which can be assessed by geomorphic, sedimentologic, and pedologic criteria indicates landscape stability.

Local Stream Alluvium

There are no natural streams within the project area itself, although there are several artificial ditches which empty excess water into the drainage ditches along River Road. There are, however, small natural drains flowing to the east near the project area into Bayou Fountain and Elbow Bayou, which also flows in Bayou Fountain. These streams drain an area of swampy lowlands that are bounded by the Mississippi River levees to the west, the Pleistocene terrace to the north and east, and Bayou Manchac to the south. The soil types in this area, Sharkey-Mhoon-Crevasse, are clayey, loamy, and sandy soils associated with the Mississippi River floodplain (USDA 1968).

Bayou Fountain flows southeasterly until its confluence with Bayou Manchac. The stream essentially follows the base of the distinct Pleistocene terrace that forms the eastern boundary of the Mississippi River floodplain. The stream collects the flow of several smaller streams, as previously noted, as well as the runoff from the slope of the terrace. Currently, the discharge of Bayou Fountain can be quite great following significant amounts of rain. Prehistorically, before a great deal of vegetation was cleared, this runoff might have been much less. The alluvial landforms deposited by such streams as Bayou Fountain and Elbow Bayou are proportionately smaller than the Mississippi River. The flow in Bayou Manchac was bidirectional before the construction of Mississippi River levees. The flow of the stream depended upon the stage of the Mississippi River and the amount of water flowing into Bayou Manchac from its tributary streams. Downstream ends of local streams might experience backwater when stages in the trunk streams are high, or flow downstream when stages in the Mississippi River are

low. Local stream alluvium is a combination of the mineralogical suites of the area it drains.

Mississippi Alluvial Valley Deposits

The Mississippi River alluvial valley, extends from Cairo, Illinois to an arbitrary location upstream of the Gulf of Mexico where the delta plain originates. The alluvial valley contains distinctive meander belts, the delta plain, corresponding delta complexes and lobes, all of which are products of shifting of the Mississippi River during the Holocene. There are several recognized geologic environments in the Mississippi River alluvial valley and in the proposed project area (Fisk 1947). Among these environments are meander belt deposits (including point bars), topstratum and slough, abandoned channels (such as chute and neck cut-offs), natural levee deposits, and backswamp deposits.

Deposition with meander belts occurs by two major mechanisms. One mechanism is downstream migration of meander bends which build lateral accretion topography on the floodplain. The second mechanism is vertical accretion, where the meander belt grows upward due to sedimentation associated with overbank flooding. Visher (1965), Wolman and Leopold (1957), and Nordin and Beverage (1964) indicated that deposits of lateral accretion comprise 80 to 90 percent of normal floodplains with the remaining 10 to 20 percent representing overbank deposits. Geomorphic features associated principally with lateral accretion of the floodplain include point bars, mid-channel islands, ridges and swales, oxbow lakes, chute and neck cut-offs. Geomorphic features associated principally with vertical accretion of the floodplain are natural levees, crevasses and crevasse splays, and backswamps.

Lateral accretion deposits are directly related to processes associated with meander bend deposition and migration. Meander bends have a steep concave bank or cut bank and a convex bank or gently-sloping point bar. The convex bank is formed by sandy material deposited during recent floods. The concave bank becomes steeper by the deep scouring action of the stream in bendways, and caves into the river. As the caving bank retreats, the opposite convex bank advances by accretion of sand, derived partly from upstream scouring and deposits as point bars in the slackwaters within the bend. As the meander bend enlarges, it may form a loop which may be shortened or cut off at the neck of the loop or at a chute channel.

Most point bars during low stage have a submerged arcuate ridge-like extension attached at the downstream end. This ridge separates the slackwater portion of the stream from the deep part of the channel near the opposite shore. During high water, deposition takes place on the bar area and a ridge is developed. Vegetation growth stabilizes this bar, and decreases the flow velocity trapping more sediment. During the following low stage, the slackwater slough receives some filling of fine sediments

carried in by migration. As channel migration continues, sand accretion progresses and the slough may become blocked off from the river by bar growth, forming a lake. As the bar grows, a series of alternating arcuate ridges and intervening swales develops. The bar ridge gradually builds to flood stage height and as the accretions become further removed from the river, the sloughs fill with fine floodwater sediments. Some mid-channel islands are separated from one bank of the river merely by a chute channel which is dry (or nearly so) at low water.

Vertical accretion deposits and geomorphic features are principally associated with overbank flooding of the channel. Partial sorting of alluvium takes place when the stream overtops its banks. As this occurs, there is a decrease in the velocity and the transporting capability of the water which results in rapid deposition of sediment. As the velocity of the water decreases, sand, being coarsest, is initially deposited, followed by silt and clay. The clayey backswamp sediment is deposited from still or slowly moving water in low areas behind the natural levees. The natural levee is typically best developed on the outside of river bends as a low, sloping, wedge-like ridge of sediments (over a mile in average width), tapering into the adjacent lowlands. These levees are being constructed above the general level of the floodplain basins and are the topographic forms which cause the meander belt to stand up as an alluvial ridge. Levee crevassing and splay development generally occur on the concave part of the meander bend. The crevasse channels are in most cases incised and flow into the distal drainage networks which parallel the slope of the flood basin floor.

Other geomorphic features in the alluvial valley are mass wasting and gravitational forces, such as bank failures, and hillslope processes. The alluvial banks of the Lower Mississippi River are subject to continual erosion and migration. River bends normally tend to move downstream as the result of the progressive effects of bank erosion. Cutoffs occur as a result of the gradual erosion at and over the necks of bends. The rate and amount of bank caving in the lower river decreases as the mouth of the river is approached. The present meander belt shifts rapidly downstream where it cuts less resistant sandy point bar deposits (Fisk 1947). Fine-grained and clayey bed and bank materials provide more resistance and slow down the rate of meander migration. Bank recession of sandy deposits is a continual movement associated with a rapidly and regularly retreating bank with smooth shorelines. Fine-grained deposits recede by slumping, which results in irregularly scalloped bank lines characterized by riverward-tilted blocks. Backswamp and abandoned channel deposits are both highly resistant. Point bar deposits in the study area, although much more resistant than coarser-grained point bar deposits upriver, are somewhat less resistant than backswamps and clay plugs. Point bar deposits are somewhat resistant because about half their volume is composed of cohesive, clayey material. Ridge deposits also contain significant amounts of clay and silt (Saucier 1969; Franzmann 1969). Hillslope processes are most active where bluffs are present, and are therefore secondary in the project area.

Mineralogical studies of the Mississippi River alluvium indicate that smectite minerals are predominant in the clay-size fraction, with secondary amounts of micaceous clays (Brown et al. 1970). Associated with these are lesser amounts of kaolinite, chlorite-vermiculite intergrade, and quartz minerals. The sand and silt-sized fractions are composed largely of quartz with a sizeable component of feldspars and weatherable minerals including biotite and hornblende. Mississippi River sediment does not have detectable quantities of calcium carbonate when it is deposited.

Specific Geomorphology and Geology of the Project Area

The project area (river mile 228.1 to 222.2) is protected by artificial levees and is typically backed by a thin belt of alluvium and by late Pleistocene deposits. The geologic history of the proposed project area has been strongly influenced by sea level fluctuations in the Gulf of Mexico and the shifting of the Mississippi River and its distributaries.

Sea level fluctuations influenced the slopes, load, and channel characteristics of rivers draining into the oceans. During the lowering of sea level, streams cut deep trench-like valleys, while during the succeeding rising sea level these valleys were alluviated. When sea level was approximately 300 ft (90 m) below present, during the Wisconsin or latest Pleistocene glaciation, the Mississippi Valley became deeply incised within coastal plain sediments (Fisk 1944). During the glacial maximum, between 20,000 and 17,000 years before present, the Mississippi River north of the proposed project area had a braided pattern. A braided stream regime may have persisted as far south as the Gulf coast, but this has not been established with certainty (Saucier 1974). Sea level began to rise after the glacial maximum. The alluvial sequence shows an upward decrease in particle size, partly resulting from the progressive decrease in slope brought about from rising sea level and consequent filling of the valley. The deposits provide evidence of a gradational reduction in the carrying capacity of the master stream (Fisk 1947), and reflect a great wave of alluviation which slowly spread upstream. Approximately 100 ft (30 m) of overbank clays and silts overlie an undifferentiated sand and gravel unit of late Pleistocene age (Figures 2-4) (Fisk 1944; Martinez 1967; Saucier 1969). The clays of the Holocene section are divisible into a stack of alternating poorly-drained swamp, well-drained swamp, and lacustrine facies (Krinitzsky and Smith 1969; Coleman 1966).

Since sea level reached its present stand approximately 5000 years ago, there has been little effective change in valley slope and no apparent change in the size of particles carried by the Lower Mississippi River (Fisk 1947). The Mississippi River has shifted to a channel with a steeper gradient every 1000 to 1500 years during the Holocene. Each major course or belt of the Mississippi River is associated with a delta complex. The early Holocene meander belts of the Mississippi River occupied courses in the western portion of the delta plain. Later meander belts occupied courses in the eastern part of

Figure 2: Location of geologic cross-sections in vicinity of the study area. Source: Saucier 1969

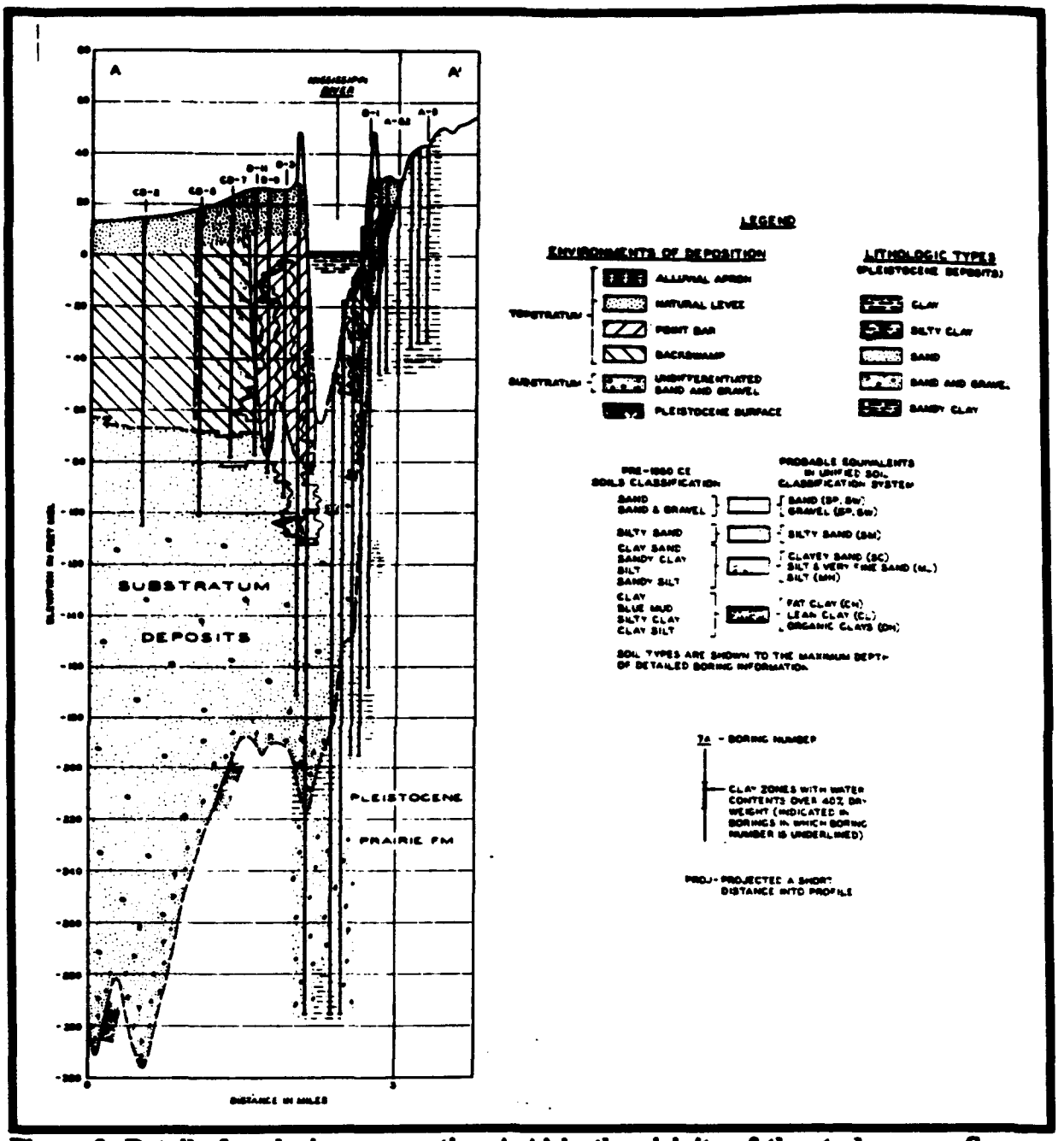


Figure 3: Detail of geologic cross-section A-A' in the vicinity of the study area. Source: Saucier 1969

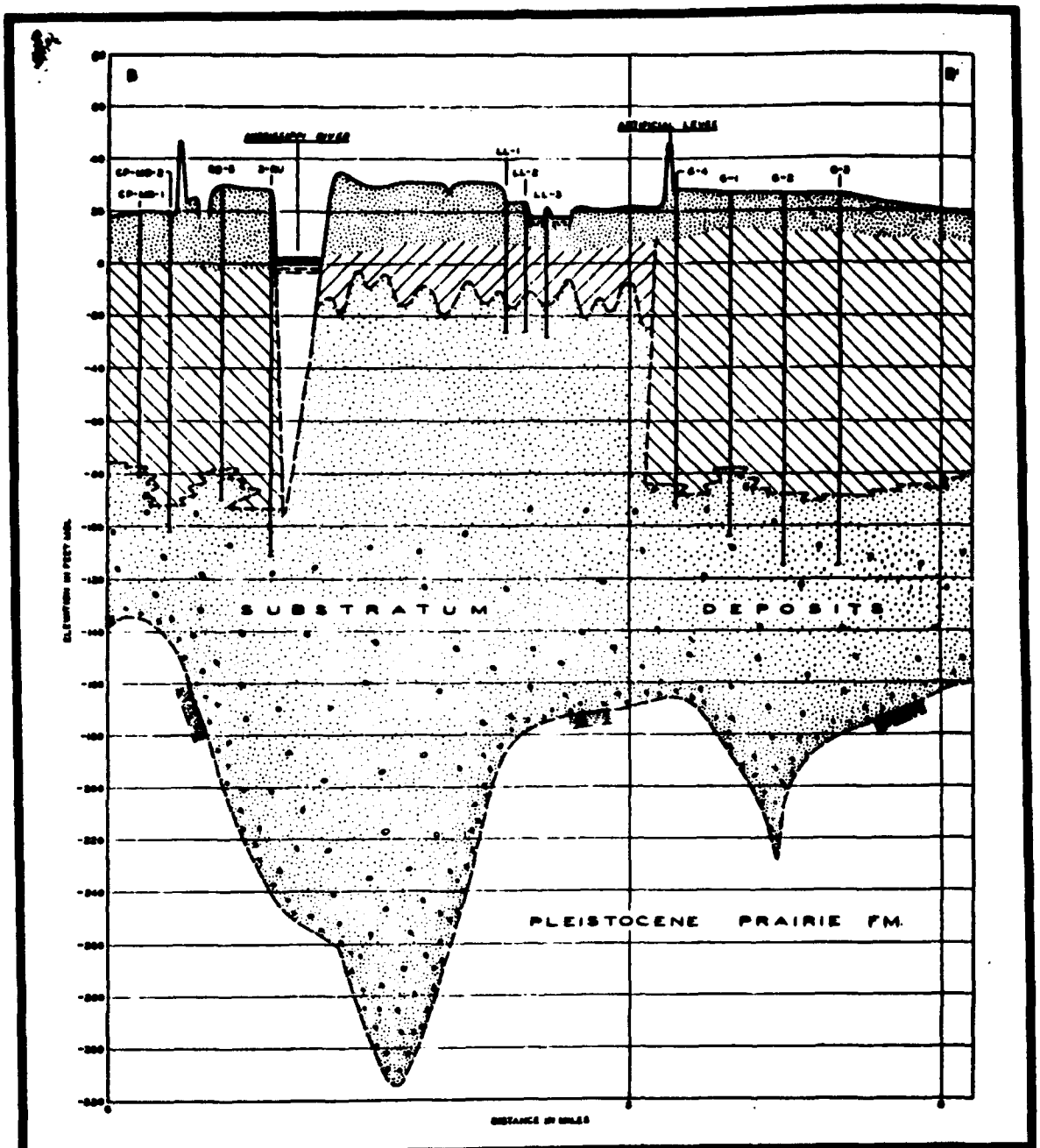


Figure 4: Detail of geologic cross-section B-B' in the vicinity of the study area. Source: Saucier 1969

the delta plain. According to Saucier (1974), the Mississippi meandered against the east terraces some 2800 years ago and has not moved much further eastward in the past several hundred years. Present alluvial features may range in age from 0 to 4800 years old because of a previous meander belt in the same locality. Previously, the active channel belt was positioned along the western wall of the Lower Mississippi Valley and had a poorly developed drainage network in the vicinity of the present channel belt (Fisk 1944). The shifting of the Mississippi River from the western to the eastern side of the valley is believed to be a major cause of stream entrenchment. A low stream terrace developed as local streams draining into the Mississippi River adjusted to changes in base level.

The scale of alluvial features is an important clue in determining rates of erosion and sedimentation in the vicinity of the proposed project area. Alluvial valley local relief on point bars may be as much as 15 ft in the Mississippi River. Ridges within a point bar area often mark the highest point within the meander belt, rising above the level of the crest of the natural levees on the opposite side of the channel. Large swales occur within the accretion topography which mark the stages in the downstream progression of meander loops. These swales vary from 500 to 1000 ft in width, with some reaching 1500 ft. Minor swales are generally associated with point bar deposits within meander loops. The majority of these swales are 100 to 500 ft wide, with some reaching over 1000 ft. Based upon the maximum thickness of the levee and the age of the channel belt, the average sedimentation rate or the rate of levee accretion in the vicinity of the project area has been calculated as 0.12 in/yr (0.3 cm/yr) (Saucier 1969).

The vertical distribution of point bar deposits in the Mississippi River is described by Kolb (1962) as increasing in grain size with depth and having few unifying characteristics. One characteristic is the presence of fairly clean, fine-grained, homogeneous sand in the basal third or half of the point bar deposits. Vertical and horizontal variability are high. Frazier and Osanik (1961) described an abandoned meander with approximately 20 ft of topstratum, consisting of silty clays, clayey silts, and sandy silts. Below this topstratum, the point bar sands attain a thickness of 100 ft, and consist of well-sorted, cross-bedded fine and medium sands with scattered pebbles, macerated plant material, and wood fragments. Descriptions of the horizontal distribution of point bar sediments is supplied by Davies (1966) from his study of the upper six meters of point bar deposits of Duncan Point. Davies observed that the upstream end of the point bar deposits are fine-grained sands with ripple-drift laminations that indicate an upstream current direction. The middle portion of the point bar is characterized by clayey silt grading upward into coarse silt. Fine sand comprises most of the sediments at the downstream end of the point bar. Because point bar deposits underlie much of the project area in Baton Rouge, underseepage occurs during high water periods in the form of sand boils, notably in the vicinity of Duncan Point. Three years when documentation of the distribution of these features were noted include the high water periods in 1937, 1945, and 1950. Figure 5 shows the locations of sand boils which developed between LSU and the river in 1937 and 1950.

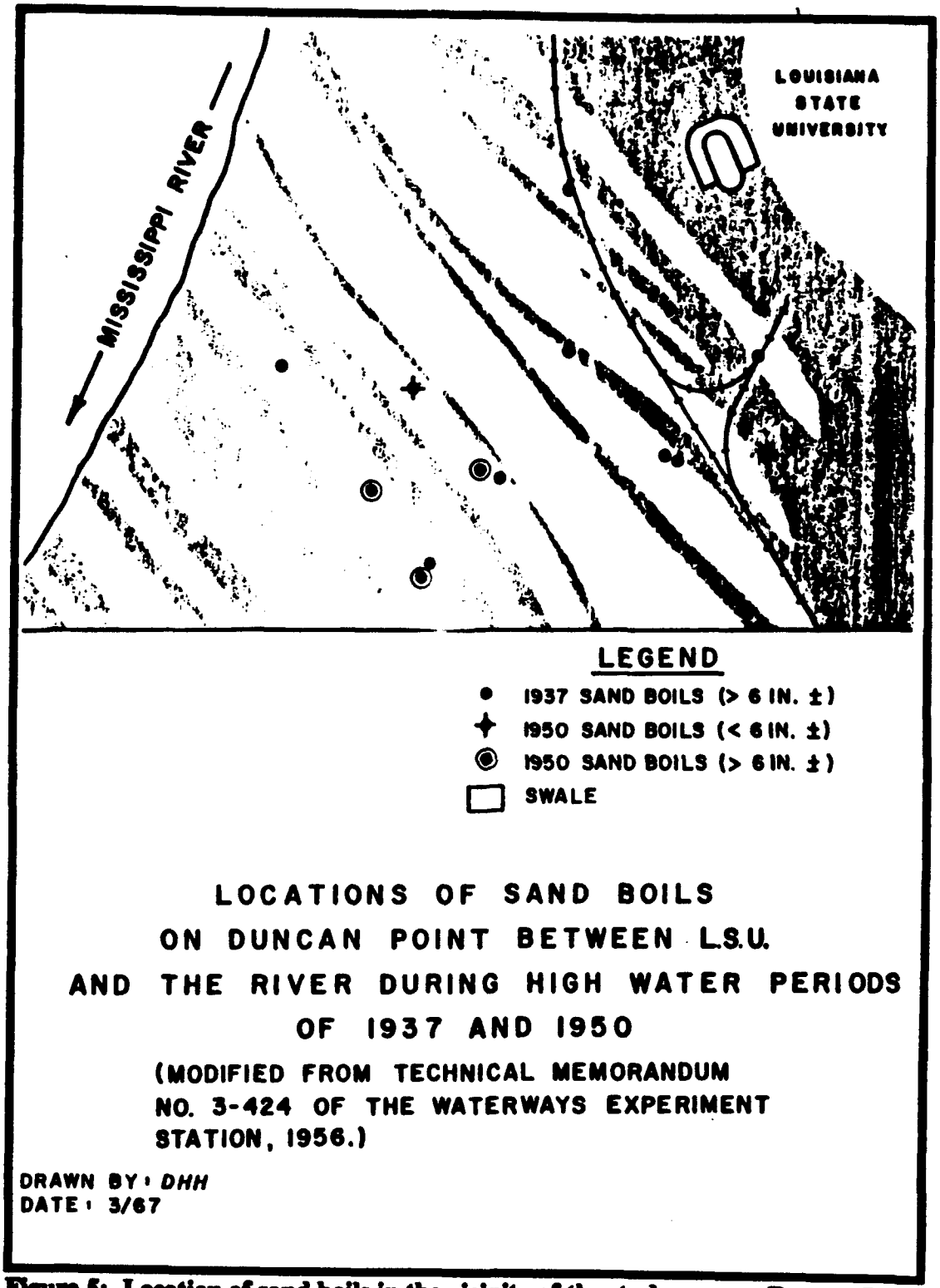


Figure 5: Location of sand boils in the vicinity of the study area on Duncan Point during the high water periods of 1937 and 1950. Source: Martinez 1967

Migration of the Mississippi River has caused many changes in stream directions since the Pleistocene. A cypress swamp formerly existed at City Park Lake, which has since been artificially cleared and dammed. The valley has been filled with over 60 ft of recent alluvium. Uplift and sea level fall helped produce these entrenched systems, and led to capture of these systems by the Mississippi River. Post-glacial alluviation of the Mississippi deposited a natural levee across the mouths of these pirated distributaries, reversing drainage to its former southeastern direction.

The Baton Rouge fault zone, which was recognized by Durham and Peeples (1956), extends a distance of 25 mi from the Mississippi River floodplain eastward to Livingston Parish. It is located approximately two miles north of the upstream end of the project area (Figure 6). At locations in Baton Rouge, the top of the escarpment is 55 ft in elevation on the upthrown north side and 35 ft on the downthrown south side. There is less displacement on younger floodplains, but at least some of the movement is relatively recent. Seismic data and subsurface well data verify the existence of the fault. At depths of 2000 ft, the amount of vertical displacement is about 350 ft (Durham and Peeples 1956). Most of the displacement has taken place during the Pleistocene, and is present to the depth at which the Miocene is encountered.

Major natural events that have affected the project area include floods and earthquakes. Major human activities include land use changes, structures, dredging, mining, cutoffs, and diversions. Floods have been measured only since the late nineteenth century in the Lower Mississippi Valley. The graphs in Figure 7 show the most significant floods during the period of record. The New Madrid earthquakes of 1811-1812 are the most significant recent tectonic events that have influenced channel adjustments in the Lower Mississippi Valley.

Wave wash and water-level surges caused by ship traffic contribute to local bank recession (Saucier 1983) and the reworking of subaqueous and subaerial sediments near the river's edge. Cultural materials in these deposits reworked by wave wash are typically found on pocket beaches or crenulations along the river edge. The water depths from which these materials are reworked are estimated to be less than 20 ft.

Also, human modifications have altered the morphology of the batture. Dumping of refuse and fill has also altered the configuration of the surface and the occurrence of materials in sections of the project area. Initial attempts to acquire soil borings in portions of the project area were delayed because of the presence of concrete pieces at depths to five feet below the surface. Borrow pits principally created during construction of the levee system following the Flood Control Act of 1928, are common throughout the area.

Erosion and deposition within the Mississippi River levees are highly variable spatially and temporally, as evidenced by vertical and lateral changes in the river geomorphology. Elliott (1932) noted that the levees could confine and cause deposition

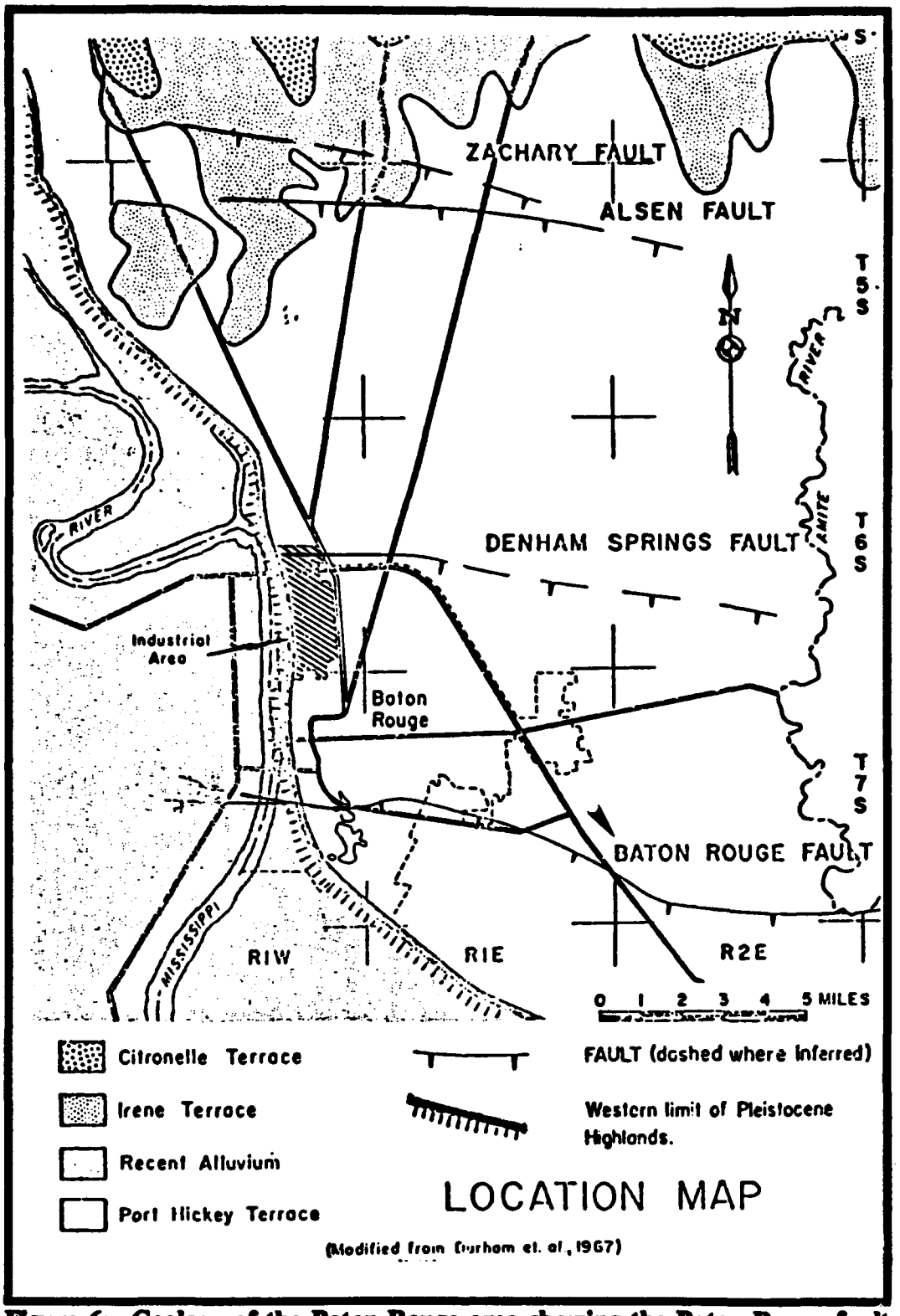


Figure 6: Geology of the Baton Rouge area showing the Baton Rouge fault zone. Source: Durham et al. 1967

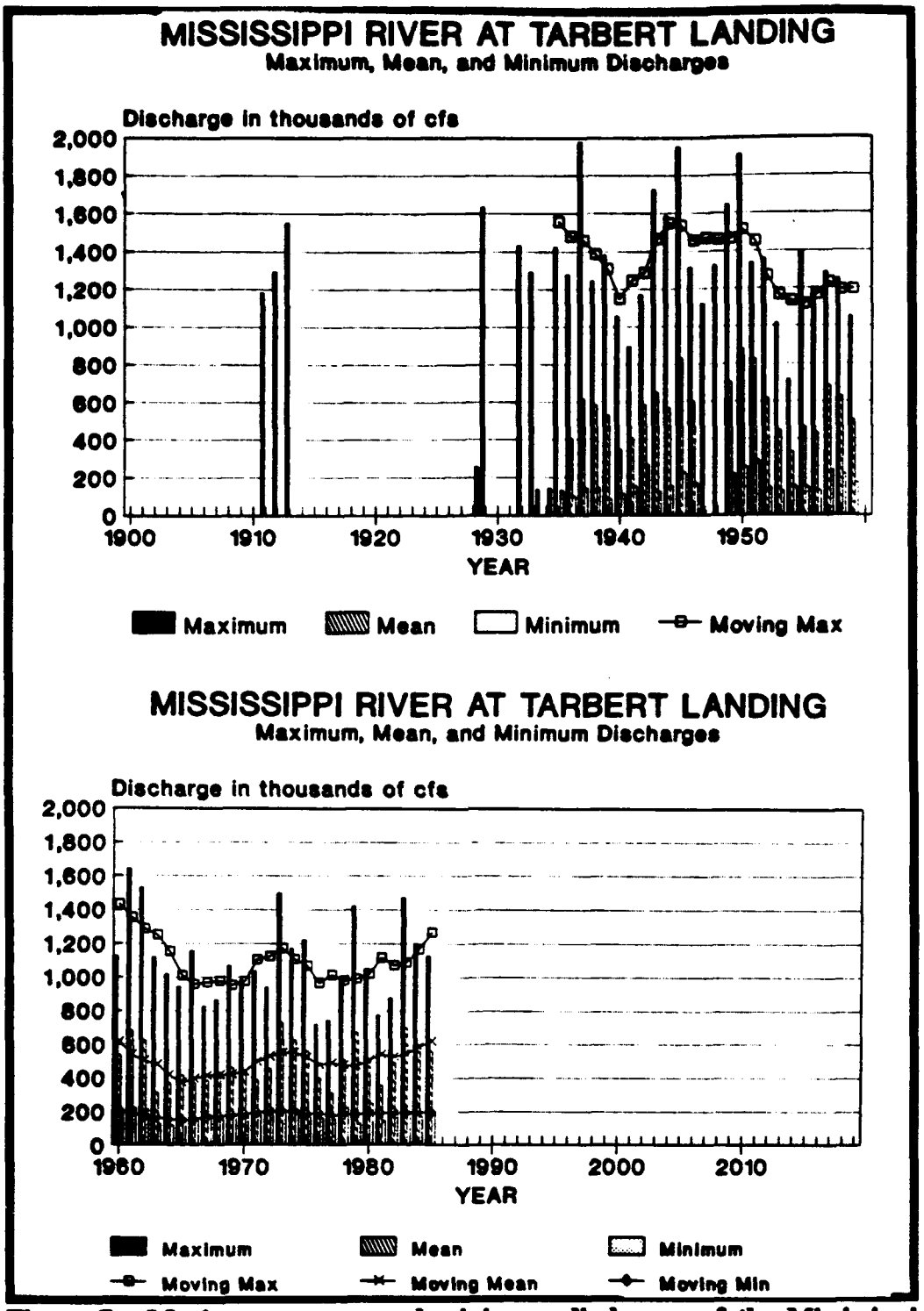


Figure 7: Maximum, mean, and minimum discharges of the Mississippi River, 1900-1985. Source: U.S. Army Corps of Engineers, New Orleans District

of the river sediment, which would reduce the cross-sectional area of the flood channel within a short time. He noted that information regarding the amount and distribution of sedimentation on the levee batture is meager, and synthesized the results of previous studies which show sedimentation as thick as five feet in less than a ten-year period near Memphis and one to three feet elsewhere. Saucier (1983) and Mossa (1989) have reported sedimentation of two to four feet since the seventeenth century on sections of the batture along the Lower Mississippi River south of New Orleans. Overbank sedimentation in areas of the Mississippi River without artificial levees that would confine floodwaters, is appreciable during high discharge years. In the flood of 1973, sedimentation averaged 86 cm on point bars, 53 cm on natural levees, and 1.1 cm in the backswamp (Kesel et al. 1974). Some evidence also suggests that sedimentation in confined reaches could possibly exceed that of unconfined reaches because they are subject to flooding on a more frequent basis. In other locations, however, erosion may be dominant over sedimentation.

Channel changes since human occupation of the proposed project area have been quite extensive, particularly since European settlement. Several bends upstream of the study reach were cut off in the eighteenth and nineteenth centuries (Elliott 1932; Ferguson 1940). In 1722, in the vicinity of mile 260 to 257 AHP, a bend was cut off by natural processes to form False River. This action shortened the Mississippi River by 21 mi. In 1776 the Homochitto Cutoff led to the development of Lake Mary in the vicinity of mile 324 to 322 of the present channel. Lake Mary has distinctive ridge and swale topography and many lakes indicative of former positions of the Mississippi channel. Topographic evidence indicates that the river may have had mid-channel is lands or towheads at the time of cutoff development. The Homochitto River empties into this lake for a distance of six miles, before it enters the Mississippi River (Ferguson 1940). Two other bends in the Mississippi River, upstream from the project area, were artificially cut off in 1831 and 1848. Shreve's cutoff in the vicinity of mile 304 to 302 AHP, which was made in 1831 shortened the distance of the river by 15 mi. Made in 1831, it led to the development of the Old River system which made the Mississippi and Atchafalaya-Red systems more distinctive. Raccourci Cutoff in the vicinity of mile 300 to 295 AHP shortened the river a distance of 19 mi, but failed to produce any improvement in navigation in the channel upstream.

Figures 8 through 10 show extent of river course changes that have occurred since the MRC began mapping in the region of the project area. These figures also show the extent of bank caving and give an indication of how many established river bank settlements were eliminated by the actions of the river. The Arlington and Hope Estate Plantations were especially hard hit. These and other plantations are discussed in greater detail in Chapter 8.

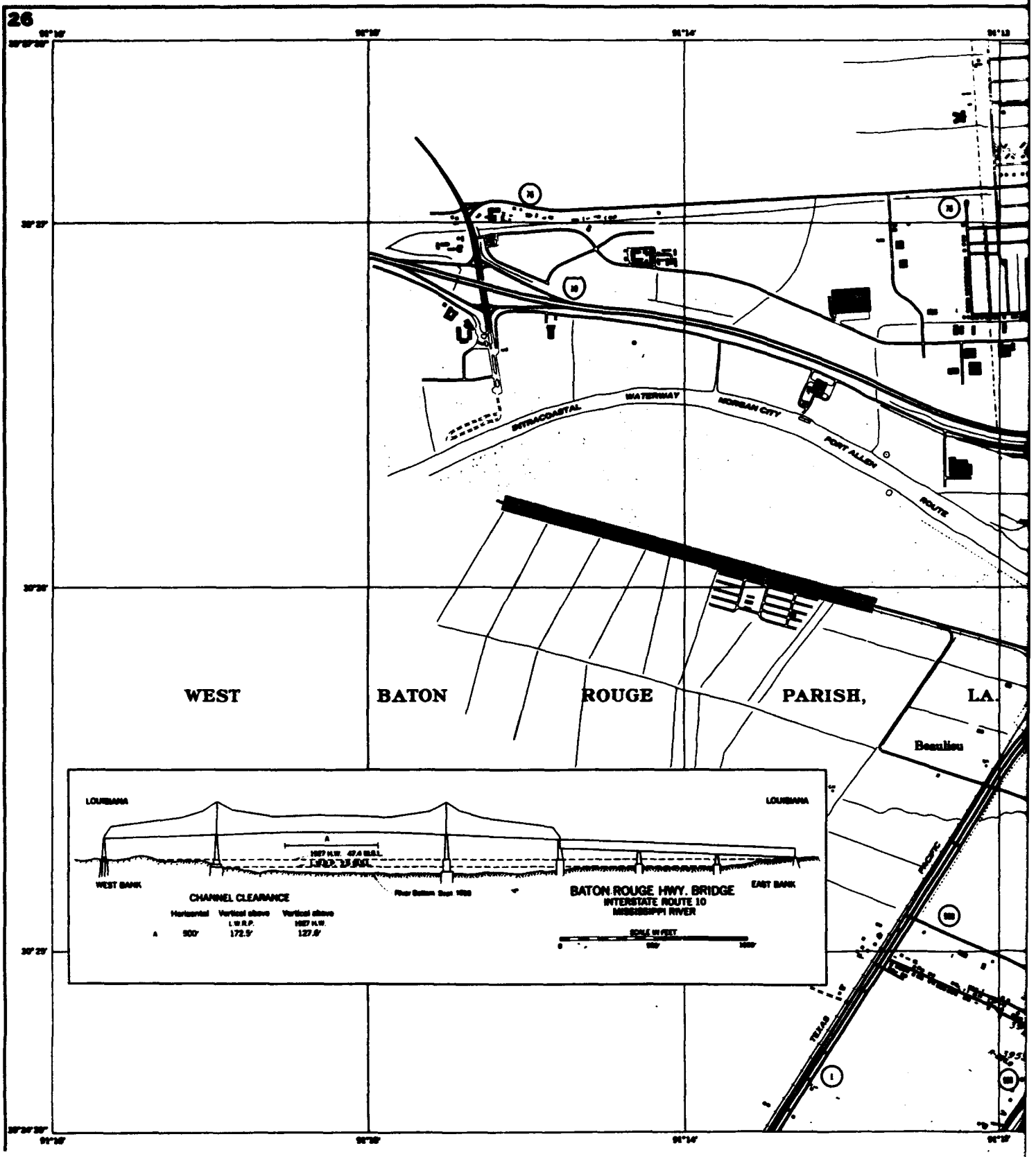
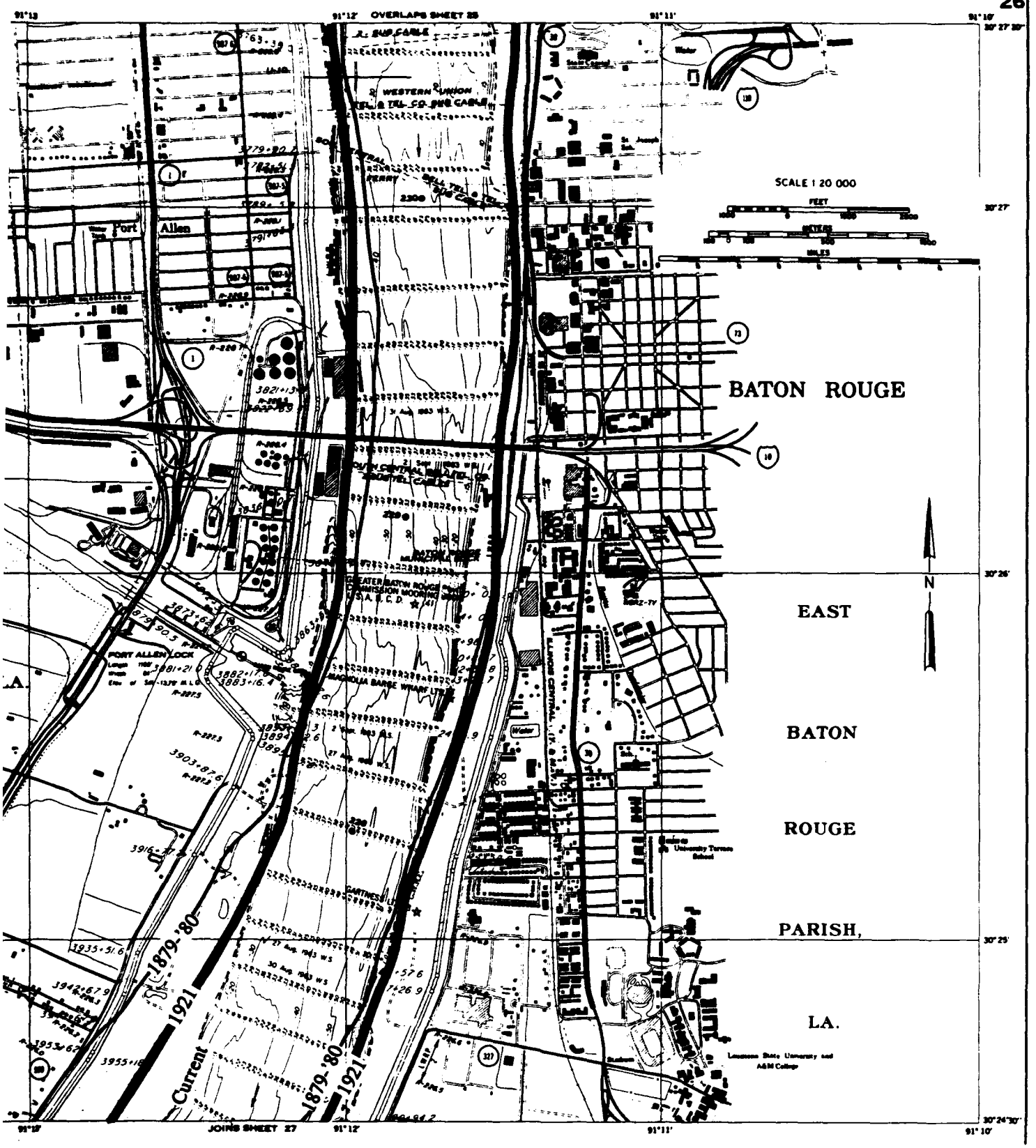


Figure 8: Mississippi River Commission Hydrographic Survey 1983-1985 (Sheet 26) showing river cours



course changes

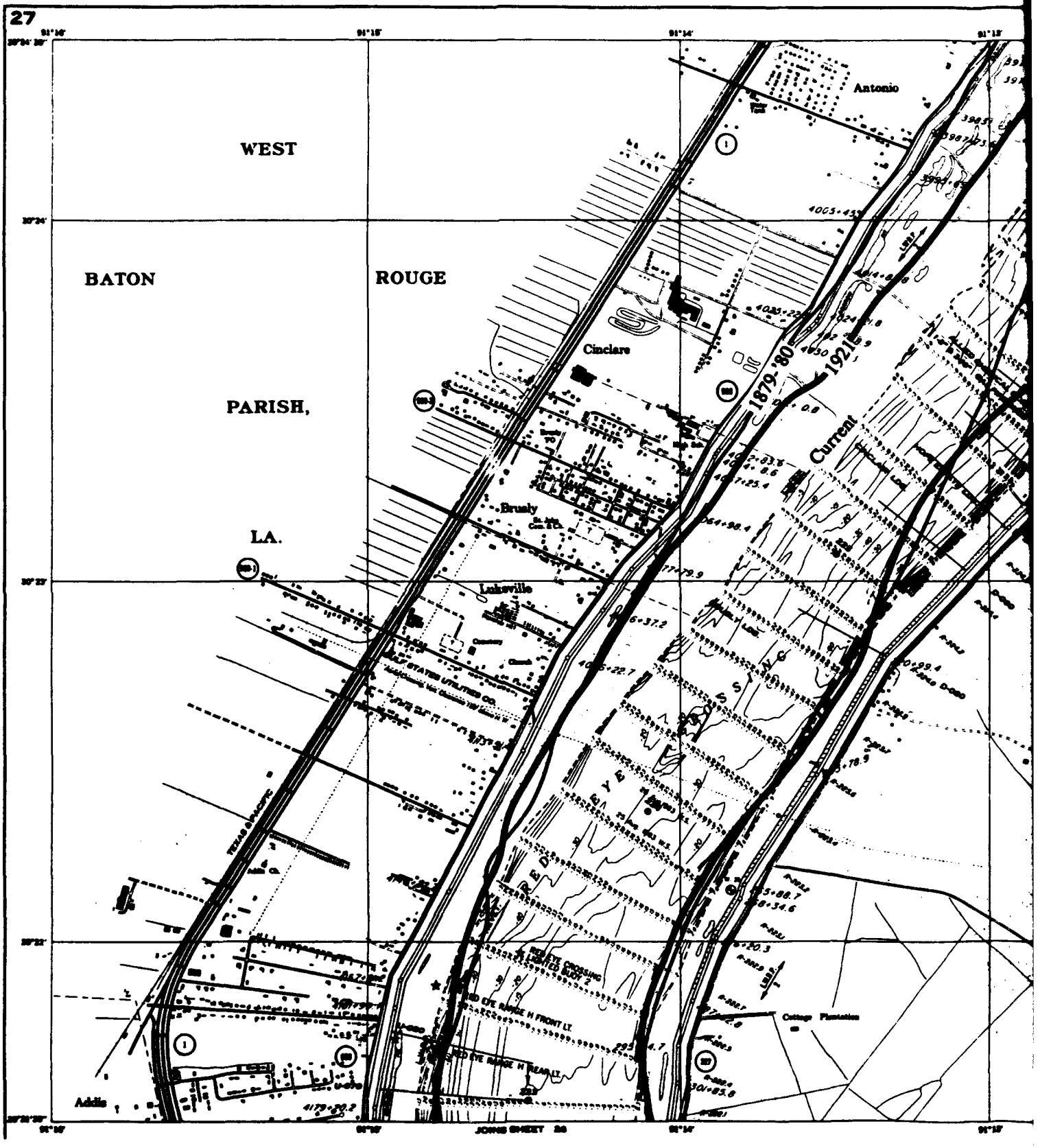
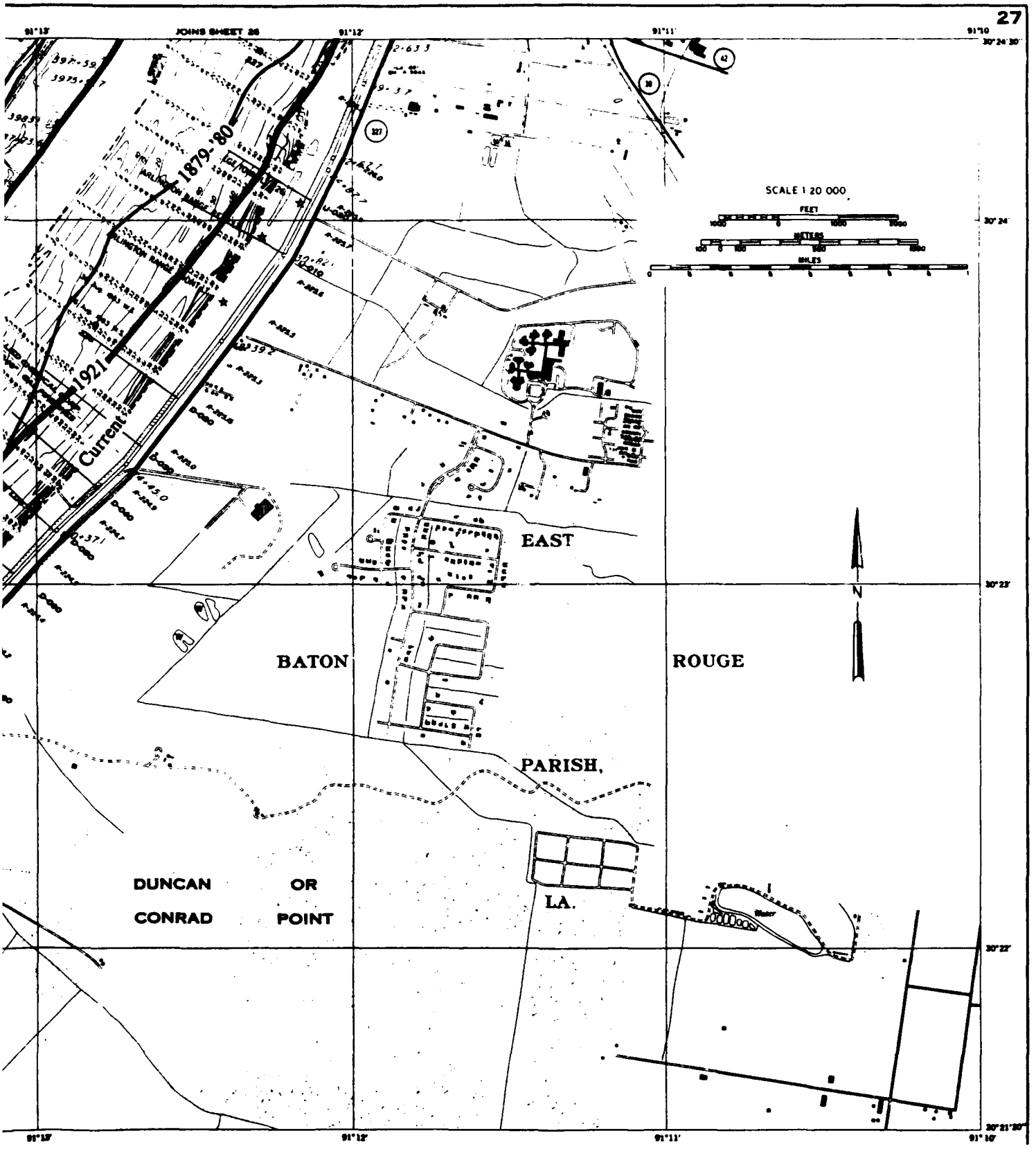


Figure 9: Mississippi River Commission Hydrographic Survey 1983-1985 (Sheet 27) showing river course



r course changes

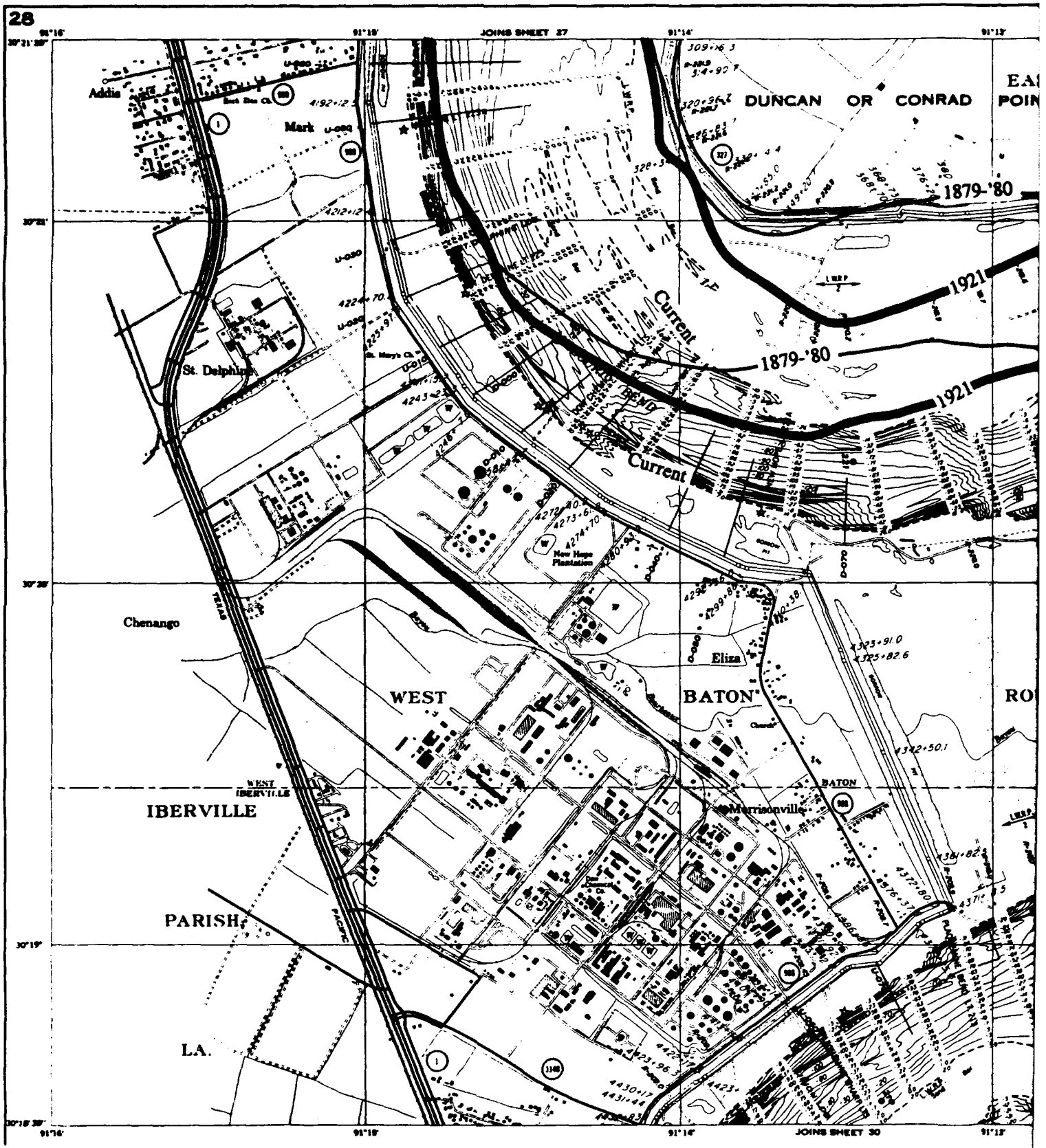
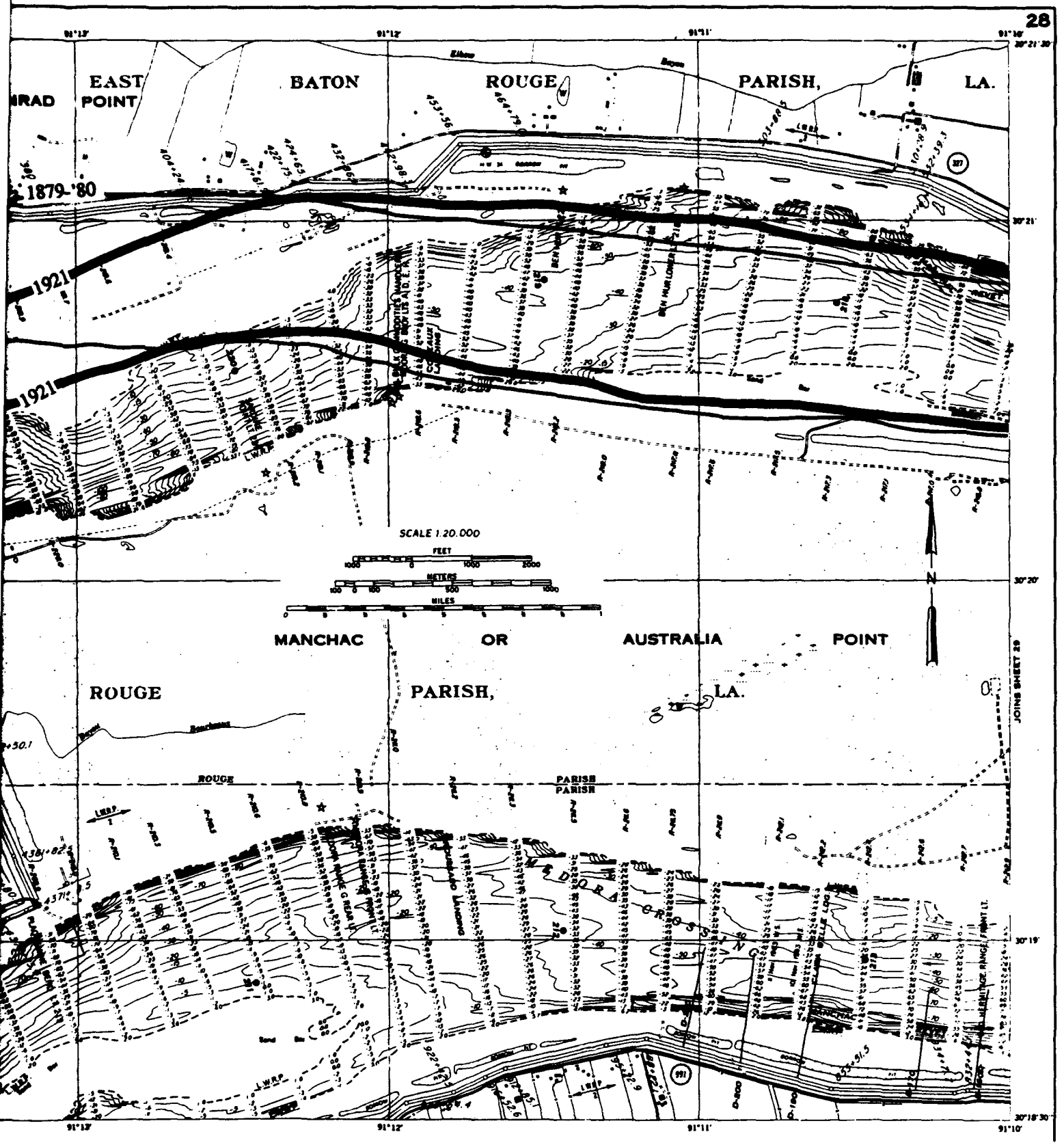


Figure 10: Mississippi River Commission Hydrographic Survey 1983-1985 (Sheet 28) showing river cours



g river course changes

Levee Construction in the Project Area

Levees were built in portions of the Lower Mississippi Valley from the earliest days of the colonial era. The first levee was built to protect the early settlement of New Orleans; it was not completed until 1727. Other levees were built in sections above and below New Orleans at the expense of the landowners whose plantation property fronted the Mississippi River. These structures varied in height and durability to the point that levee failures were common during the various colonial regimes. By the time Louisiana joined the Union in 1812, the levee extended in a complete line from just below New Orleans to Baton Rouge on the east bank of the river (Elliott 1932:160). This would have included, of course, the river frontage of the project area.

By 1849 and 1850, flooding in the Mississippi Valley had become so frequent and devastating, that Congress passed legislation that enabled states to oversee the construction of levee systems. Pursuant to this legislation, the states of Louisiana, Mississippi, Arkansas, and Missouri organized efforts to build and maintain levee systems. Unfortunately, the lack of coordination between the states and the levee districts within the states prevented the construction of an effective levee system. By 1858, however, when the Lower Mississippi Valley was assessed by Humphreys and Abbot for the Delta Survey, there was a complete line of levees built and well maintained between Baton Rouge and Pointe a la Hache. By the 1850s, maintenance of the levees in most of Louisiana was the responsibility of the police juries of the various parishes that had river frontage (Humphries and Abbot 1867:82-85; Elliott 1932:161).

Disastrous floods occurred throughout the Mississippi Valley in 1858, and miles of levee constructions were washed away. The Civil War did not allow for any repair of these levees and flooding in 1862 was reported to have been even greater than that of 1858 (Elliott 1932:161). Historic accounts of the 1862 flooding are noted in another portion of this report. The 1862 crevasse and flooding may have been the episode responsible for the topographic contours shown in Figure 11 that reflect the deposit of floodwater sediments that breached the levee. However, an 1874 map (Figure 12) depicting the location of crevasses in the Lower Mississippi Valley showed the "McCulloh Crevasse" in an area just below Baton Rouge (Hardee 1874). This event could have also been responsible for these same topographic features.

Post war improvement of the levee system was sporadic, and flooding and crevasses continued. In 1874 a board of engineers, known as the Levee Commission, reported that the defects of the existing levee system were the product of "vicious organization; insufficient grades; poor construction and injudiciously selected cross sections; inadequate arrangements for inspection and guarding; and faulty location"(Elliott 1932:162). This same commission found that caving banks in Louisiana alone had destroyed a total of 107.5 mi of levee line between 1866 and 1874.

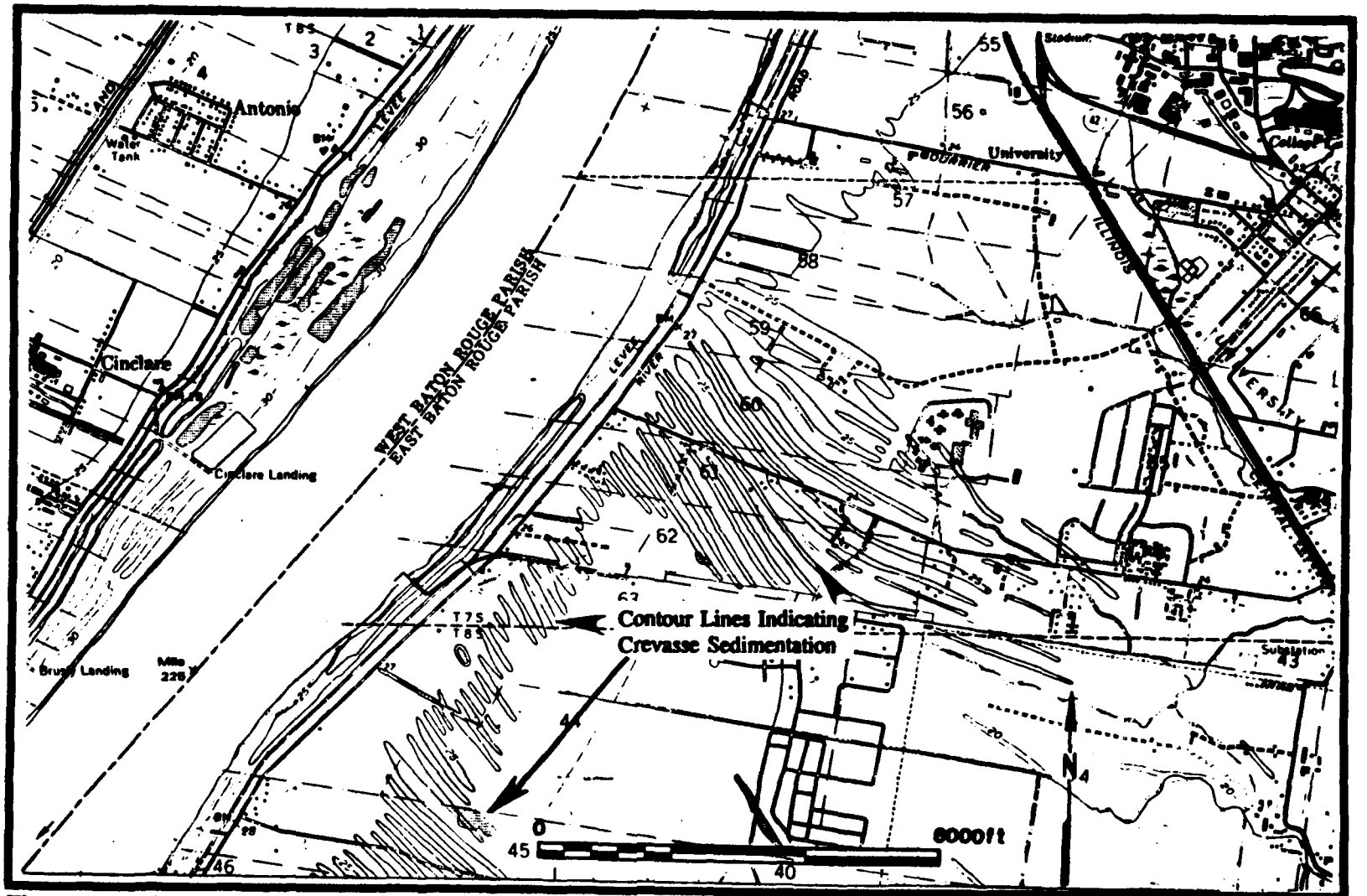


Figure 11: Detail of Baton Rouge West (1980) 7.5 minute USGS topographic quadrangle showing contour lines indicative of levee crevasse

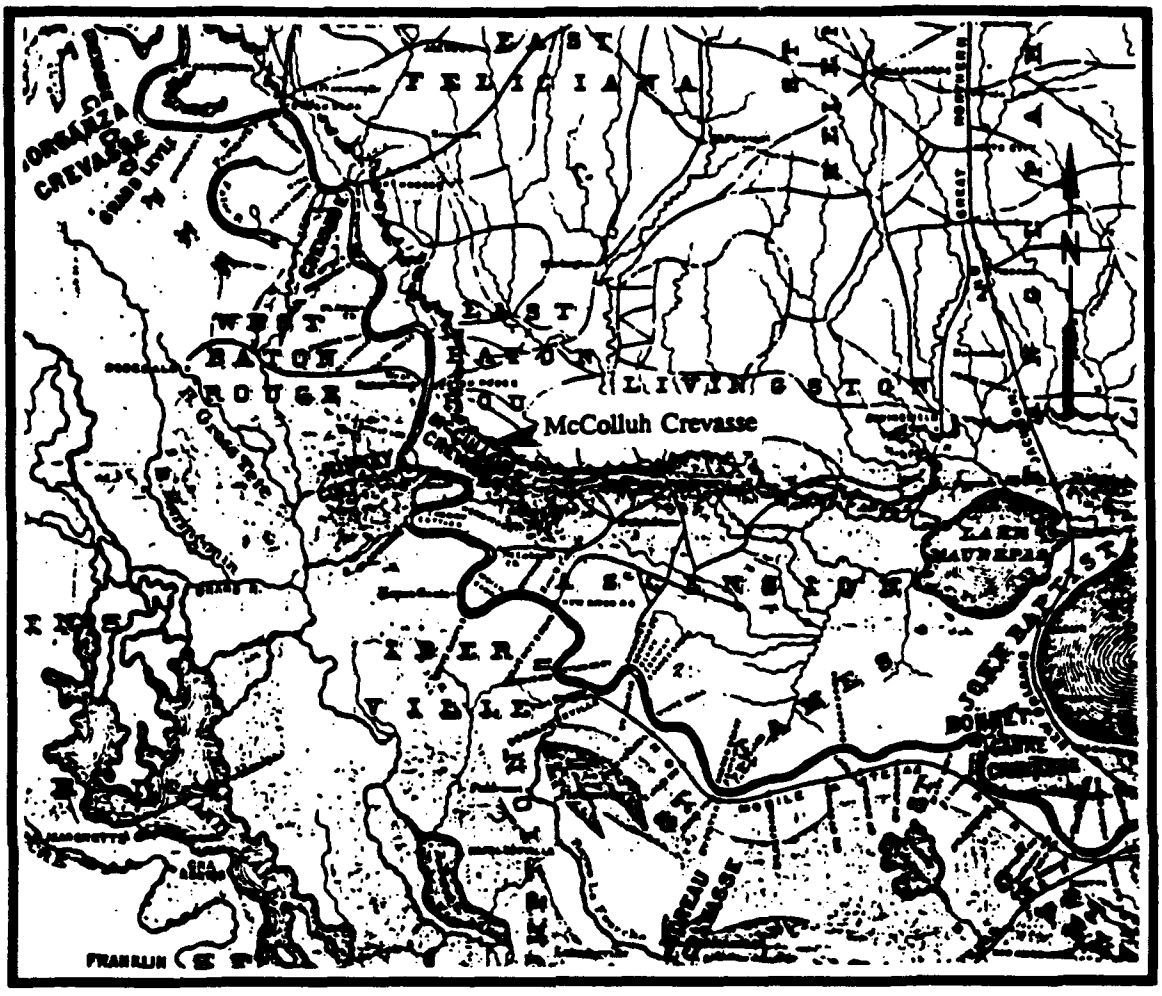


Figure 12: Detail of map entitled "Map Showing Crevasses and Devastation of Overflow of the Mississippi River in Arkansas, Louisiana & Mississippi." Map compiled by T.S. Hardee, Civil Engineer, 1874. Source: U.S. Army Corps of Engineers, New Orleans District

The Mississippi River Commission (MRC) was created in 1879 in an effort to remedy the flooding and inadequate protection provided by the then existing levee system in the Mississippi River Valley. The MRC mapped the Mississippi River in a systematic fashion, noting the locations of settlements and levees on the river's banks. Levee construction was occasionally very elaborate, as shown in Figure 13 which displays a former levee in the vicinity of the project area.

Whatever improvements on the levee system the Mississippi River Commission may have made, the first levee constructions were not always permanent. Figures 14 through 16 show the present levee line within the project area and the levee lines on MRC maps made in 1879-80 and 1921. It is readily apparent that the levee has been set back on a number of occasions. Maps of the Pontchartrain Levee District show a number of levee construction episodes in the project area. Moving downstream from the northern end of the project area, these constructions include: The U.S. Magnolia-Gartness Enlargement 1926-27, U.S. Baton Rouge-Gay Setback 1929-33, Arlington Enlargement 1917, Arlington Enlargement Shannon Levee 1917, U.S. Hope Estate Enlargement 1914, Laurel Enlargement 1935, and the U.S. Cottage Enlargement 1915. The Baton Rouge-Gay Setback incorporates the current levee constructions within the project area and they have been improved with asphalt and concrete pavings on the slopes of the levee in various locations (U.S. Army Corps of Engineers Pontchartrain Levee District Maps).

Also, the improved levees dating from the 1880s have not guaranteed an end to crevasses or flooding. The so called Martinez Crevasse occurred on April 22, 1890 on the left bank of the river 842 mi below Cairo and was not closed until April 28. This crevasse occurred on the Martinez Plantation, just downstream from the project area, and was 124 ft wide and 2443 ft in cross-sectional area. The Conrad Crevasse occurred on May 30, 1897 at about 840 mi below Cairo and probably would have affected portions of the Cottage Plantation property that is within the project area. This crevasse had a width of 241 ft, a gage height of 37.9 ft, and an estimated discharge of 23,000 cfs. Current contours in the downstream portion of the project area do not reflect any crevasse deposition on the existing land surfaces that may have resulted from either of these episodes.

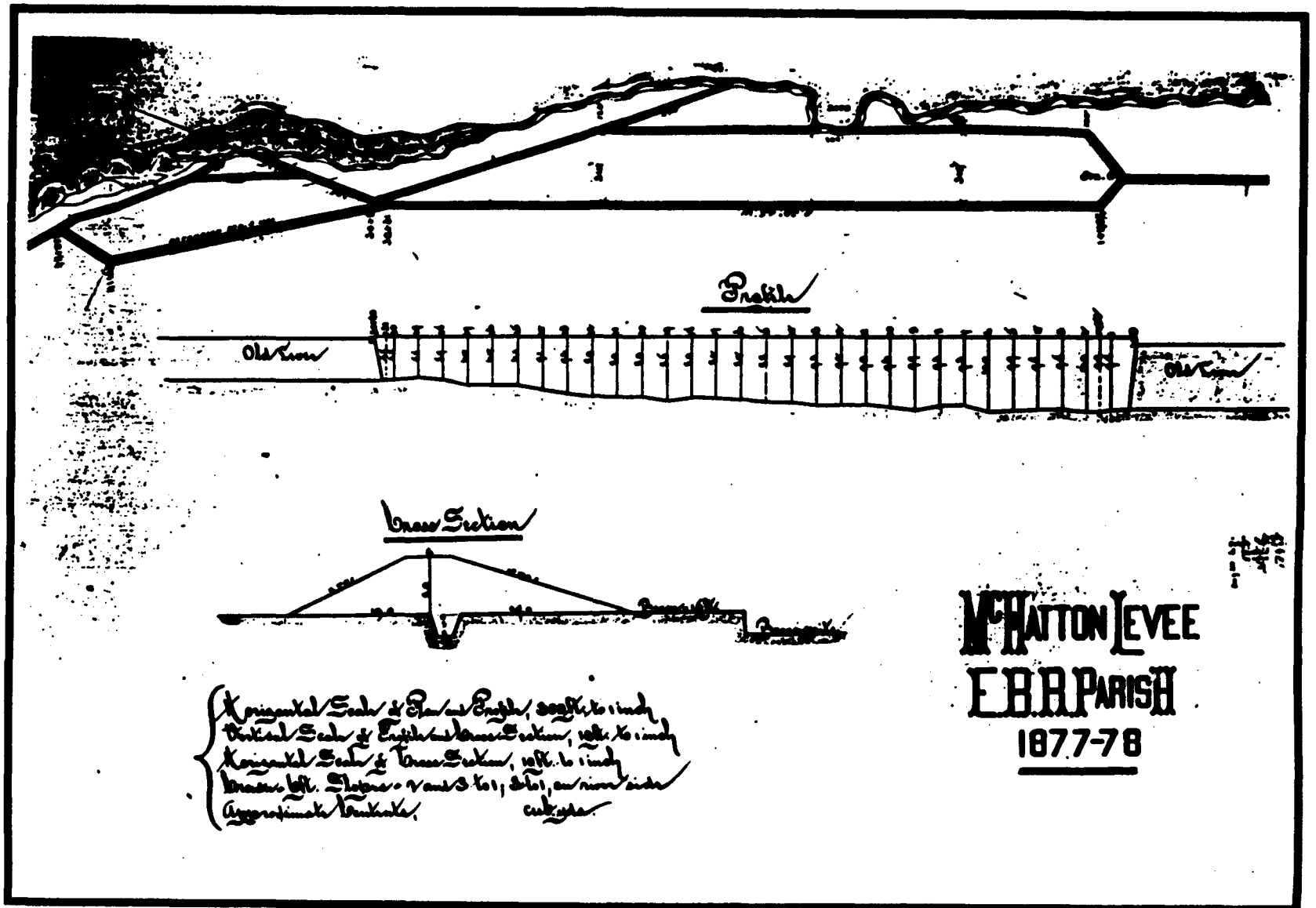


Figure 13: Example of levee construction at McHatton Levee, EBR Parish 1877-78. Source: Louisiana Department of Transportation and Development

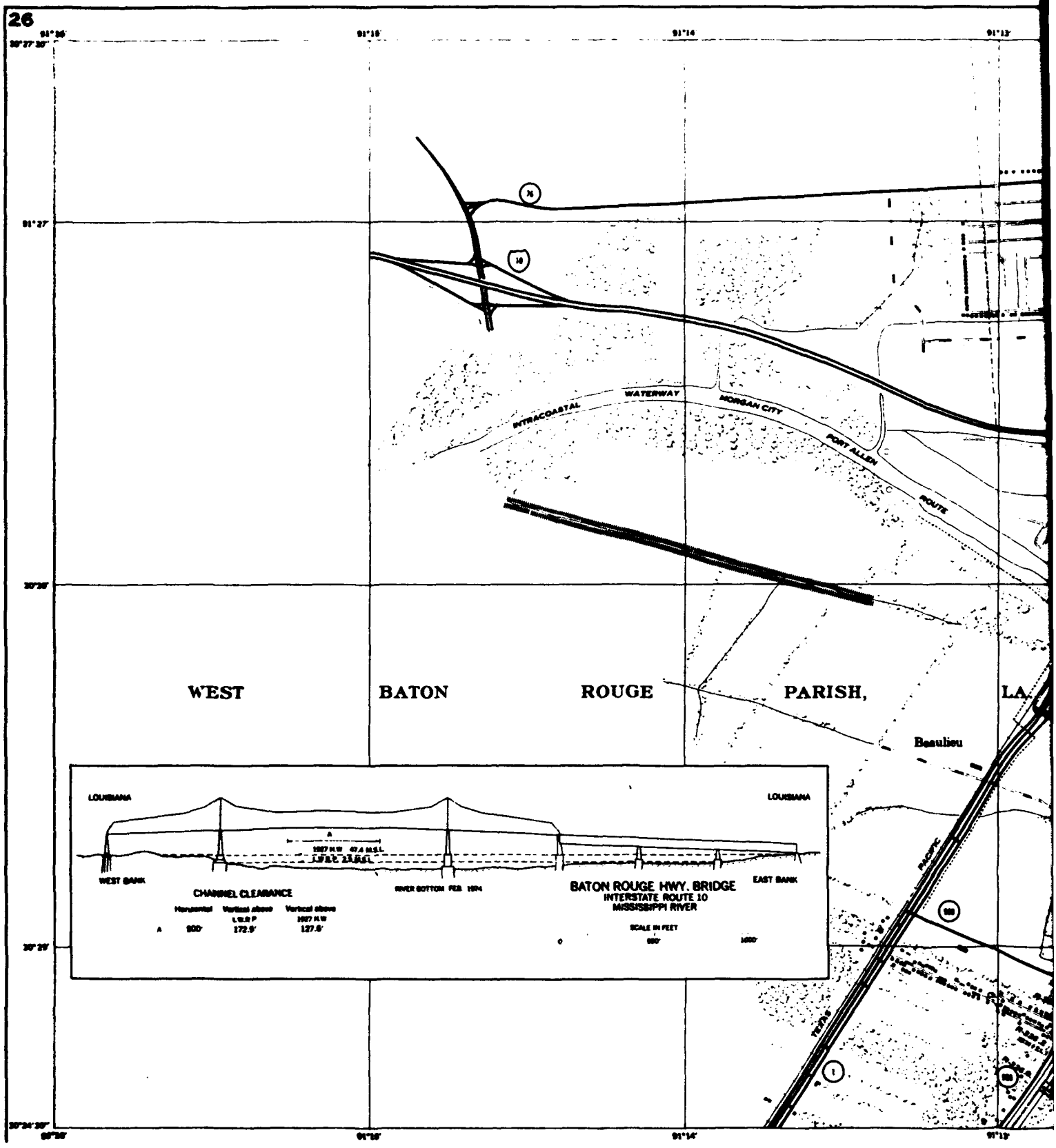
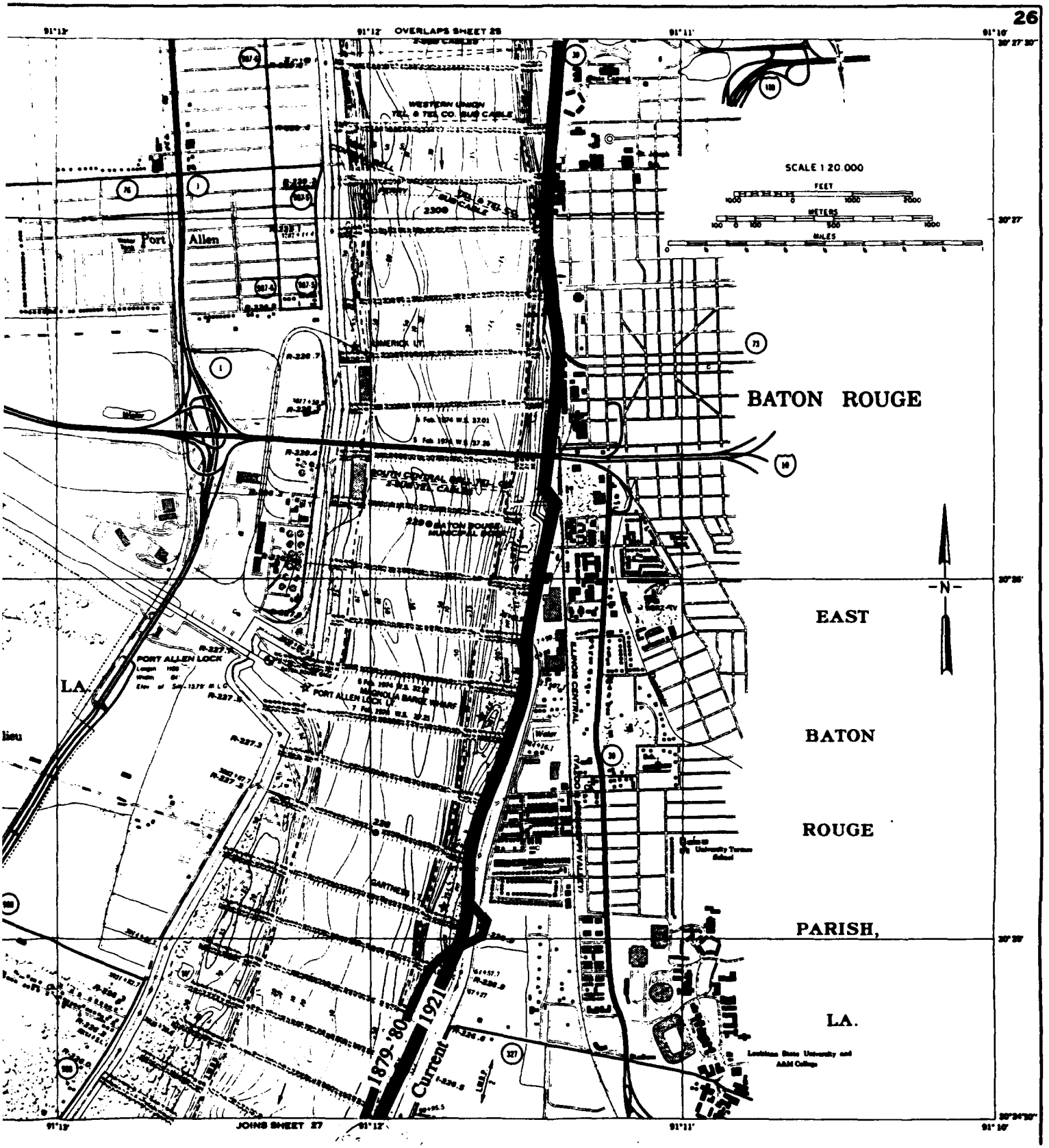


Figure 14: Mississippi River Commission Hydrographic Survey showing 1973-75 levee line changes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MILES
Port Allen
BATON ROUGE
EAST BATON ROUGE PARISH, LA.
-N-
PORT ALLEN LOCK
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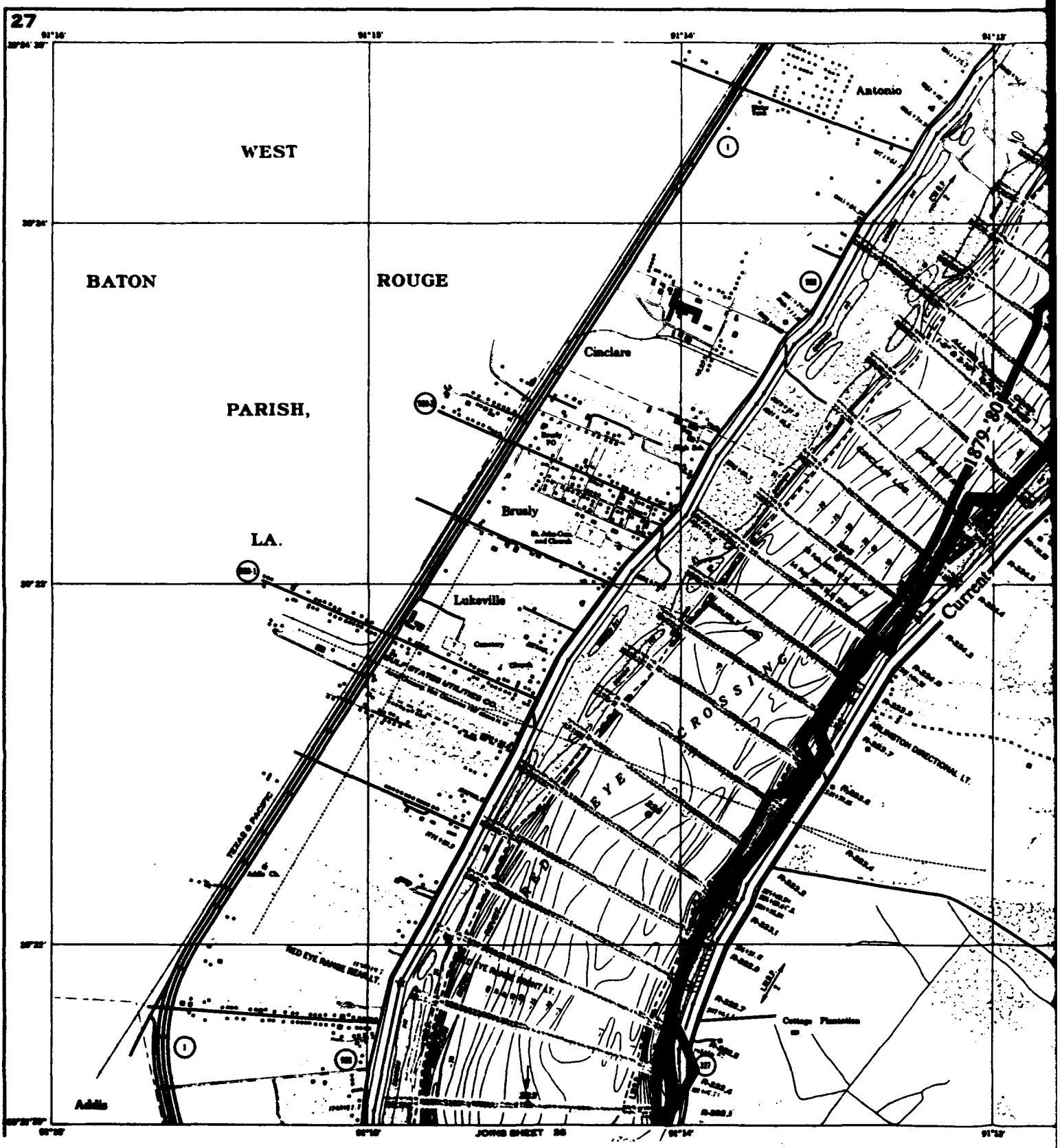
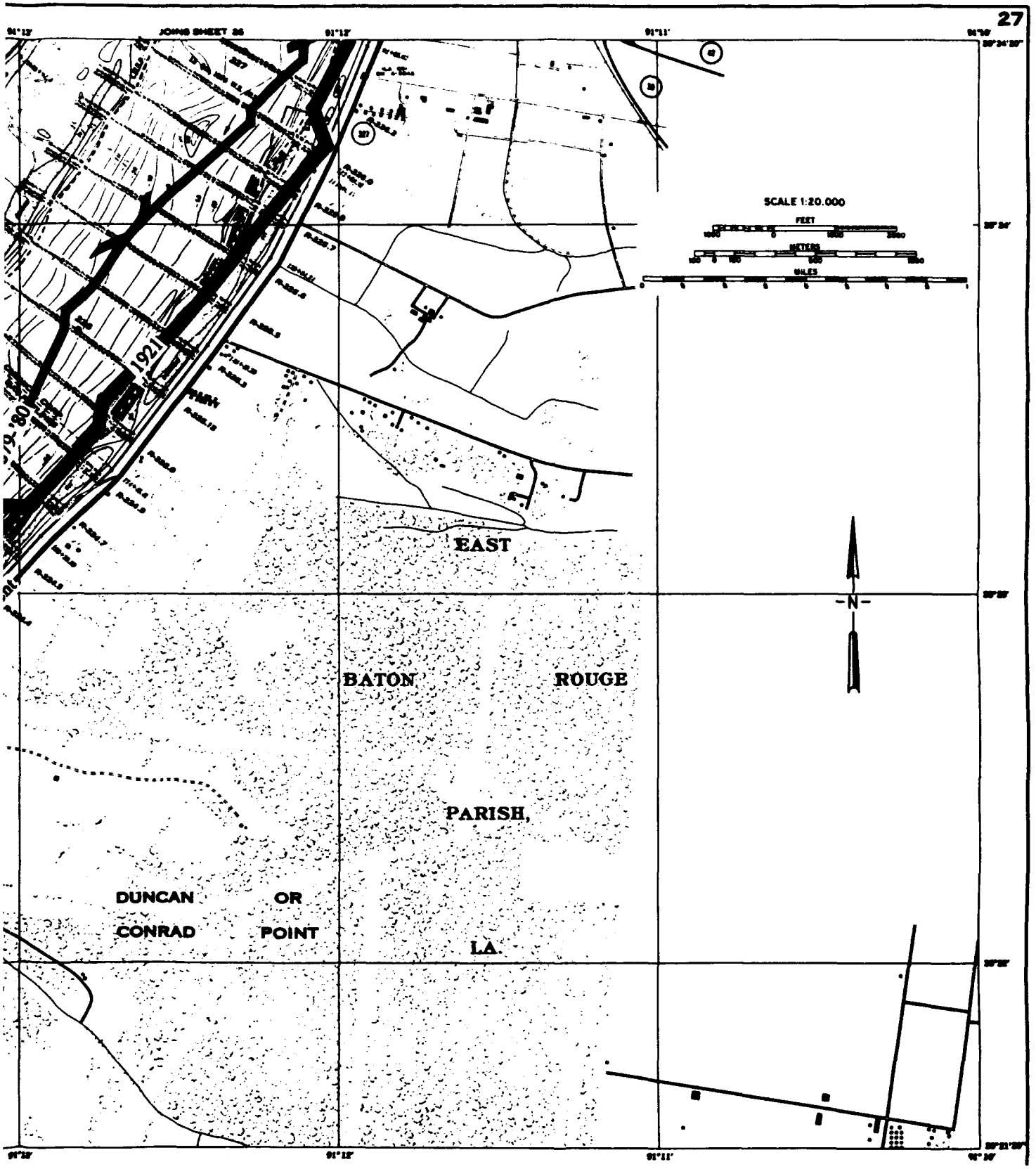


Figure 15: Mississippi River Commission Hydrographic Survey showing 1973-75 levee line changes


27
JOINS SHEET 26
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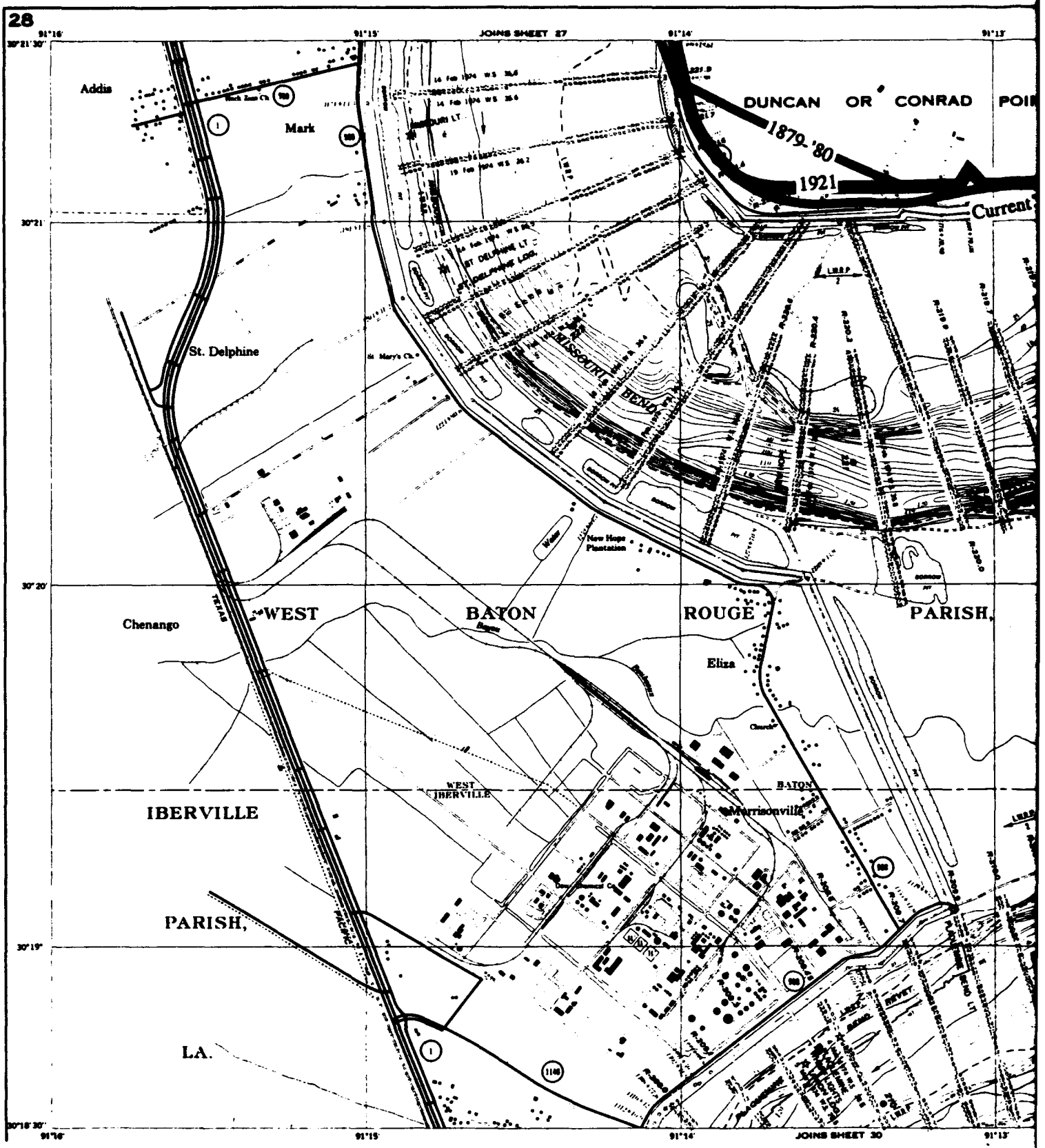
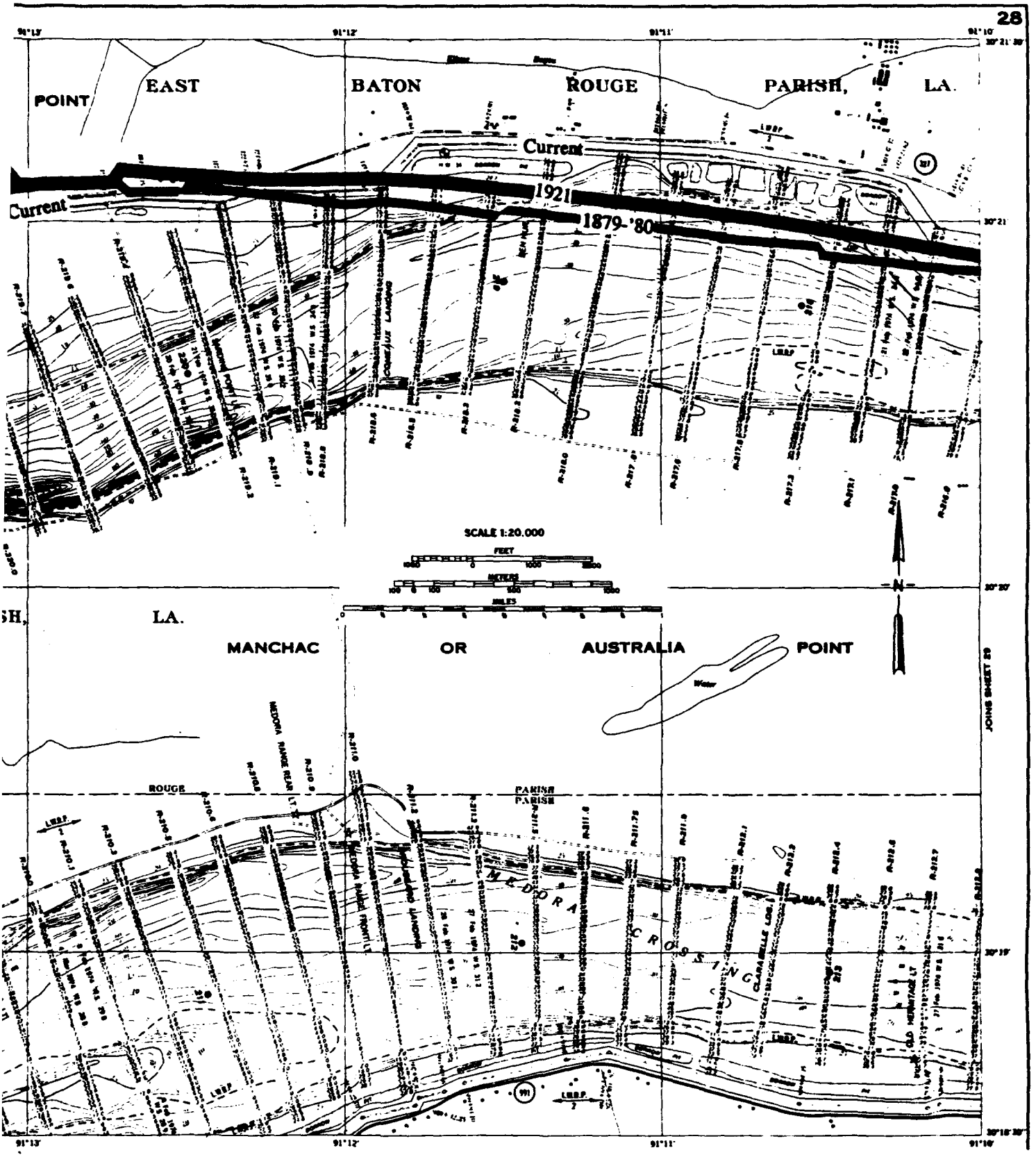


Figure 16: Mississippi River Commission Hydrographic Survey showing 1973-75 levee line changes


POINT
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MEDORA
CROSSING
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CHAPTER IV

SPECIAL GEOMORPHIC INVESTIGATIONS IN PROJECT AREA

Large volumes of suspended sediment in the Mississippi River system have been confined within the artificial levees. The confinement has not only resulted in reduced sediment supply to Louisiana's eroding and subsiding coastal wetlands, but appears to have caused increased sedimentation on the levee batture. The implications of increased batture sedimentation and resulting decreased cross-sectional area include the more rapid burial of cultural resources and the decreased total flow volume allowed to pass safely during floods. Cultural resource investigations have been extensive in this setting in conjunction with revetting and re-revetting stretches of the Lower Mississippi River. However, site discovery has been limited, which is a concern considering the natural levees were once favored locations for human settlement and resource utilization.

Consequently, two transects perpendicular to the existing levee were selected for obtaining soil core samples and conducting specific geomorphic investigations in an attempt to determine the depth and rate of this deposition. If a consistent rate of deposition could be determined, the vertical location of historic cultural deposits might be predictable. The upstream transect was designated FT (Fun Time), with boring FT-1 being closest to the river. The lower, downstream transect was designated CP (Cottage Plantation), with boring CP-1 being closest to the river and boring CP-3 being landward of the artificial levee. Locations for the transects are shown in Figure 17.

Borings measuring two inches in diameter and ranging from 12 to 22 ft in depth were obtained with a Giddings hydraulic probe mounted on a truck. Selection of the sites for boring were dependent on access to the batture for the coring rig, weather conditions, and the presence of material dumped in the area that might damage the core. An initial attempt to test a portion of the project area north of the current Arlington Revetment resulted in damage to the rig when buried chunks of concrete were encountered. Borings were purposefully located where deposition was dominant over erosion. Two cores were placed on the batture side of each transect and one on the landward side of the Cottage Plantation transect as a control. The land side of the upstream FT transect is located on the lower end of sediment deposits produced by a crevasse in the levees near Arlington Plantation in the nineteenth century. This deposition did not produce any great elevation differences between the landward side at the Cottage Plantation transect. The amount of sediment would determine the contents of a core, however, and no sample was taken from the landward portion of the FT transect.

Topographical elevations were collected along the two transects which showed the land elevations and the elevations at the points where the cores were taken. Across the upper transect, elevations of the surface landward of the artificial levee were 23 to 25

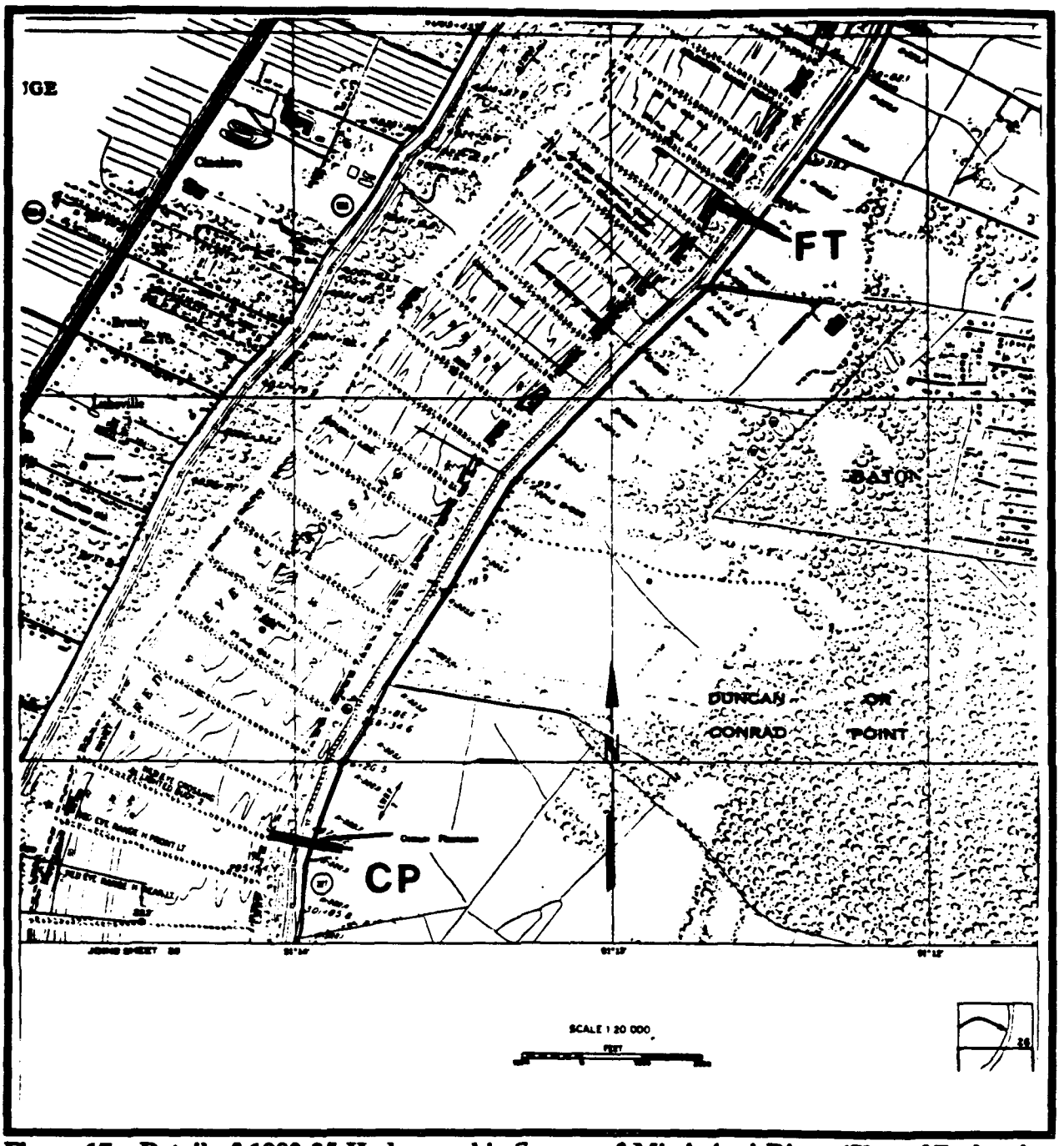


Figure 17: Detail of 1983-85 Hydrographic Survey of Mississippi River (Sheet 27) showing locations of transects for special geomorphic study in project area

ft, on average three to five feet lower than that riverward side of the artificial levee. Distances between these areas are about 600 ft. Across the lower transect, elevations of the surface landward of the artificial levee are about 23 ft, averaging three to seven feet lower than the surface elevations riverward of the artificial levee (Figure 18). The batture is inundated on an annual basis with few exceptions, since highest stages typically exceed these elevations (Figure 19). Appendix A is a presentation of the contents of soil probes from both the FT and CP soil cores.

Initial assessment of the soil borings showed that the batture sediments had been frequently reworked and no distinct pattern or pattern of deposition was discernible. Consequently, chemical analyses of elements were used to provide supplemental information regarding rates of sedimentation on the batture of the lower Mississippi River in the project area. It was felt that such data could show changes in parent material in recent geological history and sediment-transported trace metals associated with industrial activities along the river (short to intermediate term). It was hoped that a horizon of chemical laden deposition from the industrial sites upstream could be detected and would serve as marker horizon from which overlying deposits could be dated. It was known that petroleum refinery activities began in Baton Rouge in the early twentieth century, but grew dramatically during the late 1930s. (See Chapter VII) Also, such deposition would likely postdate the 1927 flood when portions of the levee were restructured. Moderate cost, intense industrial activity in the area, and the relatively shorter period of time required for data analysis were reasons for this type of analysis.

Total elemental analyses were made with an ICP spectrophoto meter (ARL-3400) after hydrofluoric acid digestion of less than 2 mm fraction (Bernas 1968). Sam Feagley of the Louisiana State University Department of Agronomy ran analyses on 11 samples from core FT-2 on the upper transect. Several additional analyses were run once the initial results proved interesting.

Heavy metals such as lead and zinc tend to be absorbed on silt and clay sediments and on organic matter, thus vertical variations in the concentration of metals can be used as an indicator of relative age (Knox 1987). Viets and Boawn (1965) report that in most soils, zinc is soluble only in the parts per billion range. This characteristic favors retaining the maximum metal concentration in the stratigraphic horizon where it was originally deposited. Lewin et al. (1977) examined heavy metal pollution in floodplain environments of Wales, and concluded that zinc does not migrate to any appreciable extent as simple ions because of the tendency to be strongly adsorbed by fine particles. Macklin (1985), who studied vertical variations in heavy metal concentrations for a floodplain site in the Upper Axe Valley, England, found that the concentration of heavy metals in fine-grained stratigraphic horizons remains relatively stable over time.

Elemental analyses of the first core (FT-2) was subsampled for metals including Arsenic (As), Chromium (Cr), Copper (Cu), Lead (Pb) and Zinc (Zn), among others, and was promising. Figure 20 shows the results of total elemental analyses of 11

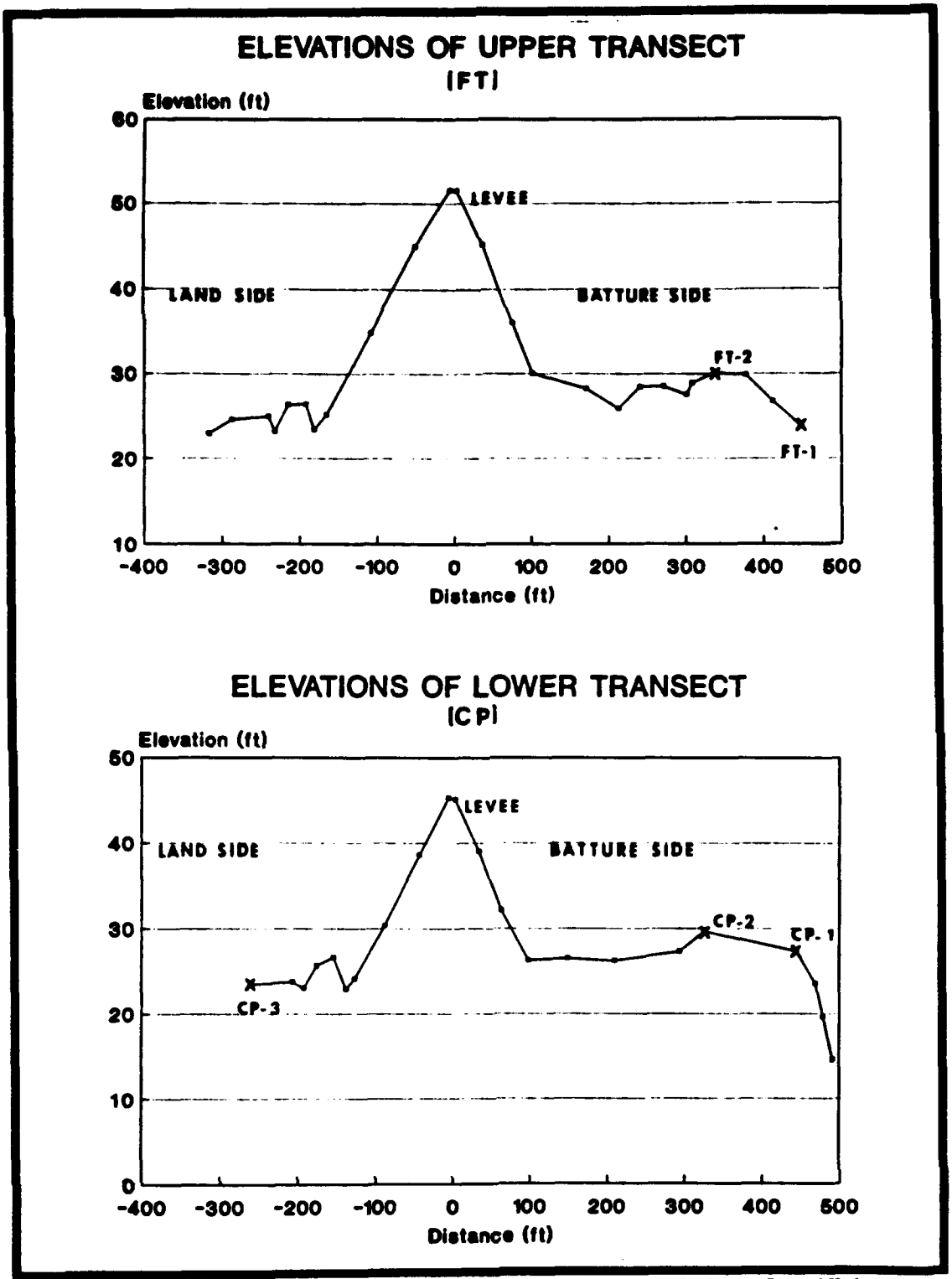


Figure 18: Surface elevations of transects from landward side of artificial levee toward the batture

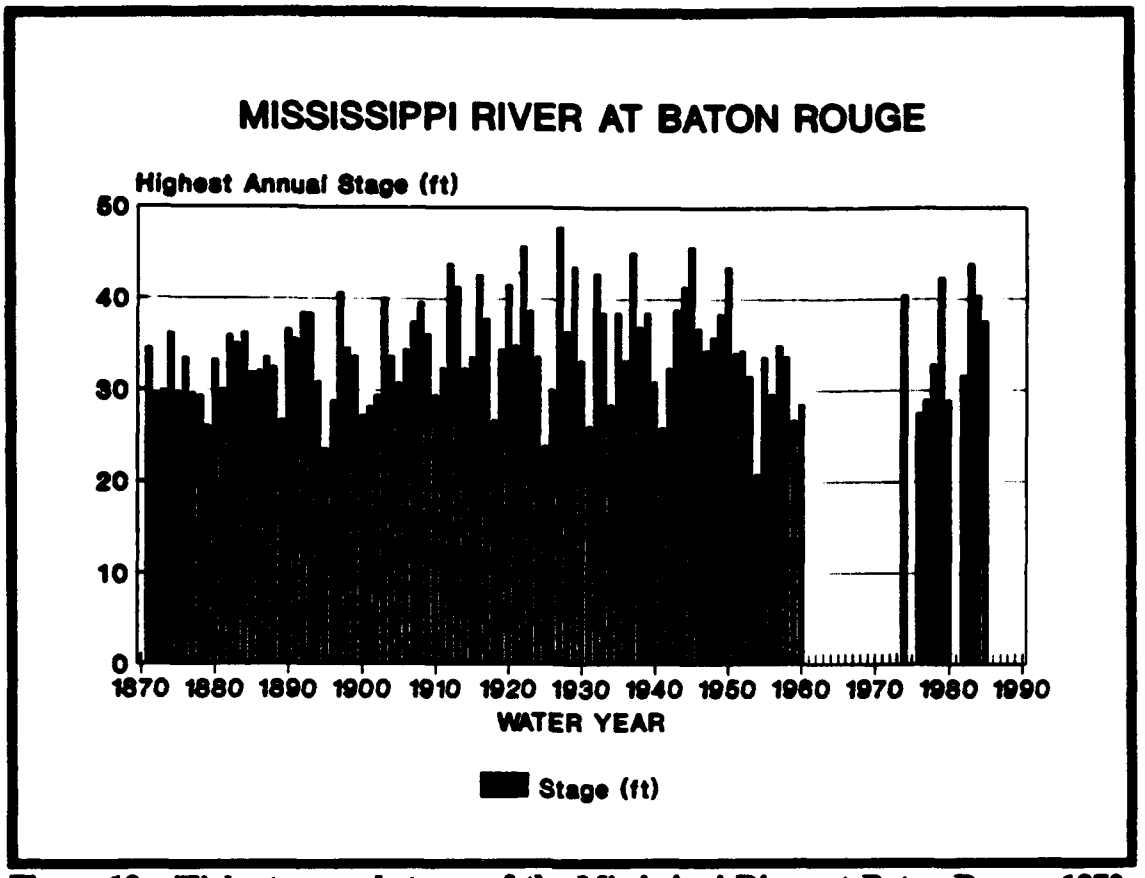


Figure 19: Highest annual stages of the Mississippi River at Baton Rouge, 1870-1985. Source: U.S. Army Corps of Engineers

samples in the boring, and the apparent trends that are occurring with depth. Concentrations of several elements, including the five elements shown, decreased rapidly below depths of 200 cm. In the upper horizons there was evidence of apparent leaching. Below this horizon was a zone of maximum concentrations of several heavy metals between depths of 75 and 150 cm. These metals could be markers of industrial activity further upstream in the valley. They also may be markers of the depths at which metals are accumulated, but the upper horizons would have to have been enriched for such accumulations to have developed. The total elemental analysis also showed zones of lower silica content (not illustrated), which might be associated with the input of highly weathered sediments transported from further up the valley. Additional samples were acquired from the cores with less promising results. Core FT-1 showed some similar patterns to FT- 2 in Pb content (Figure 20), and additional subsamples of FT-2 (not shown) produced greater irregularity on the initial graph.

Samples examined for total elemental analysis along transect CP did not show as distinct patterns as transect FT. The element which showed the most apparent differences was Pb, which increased below the surface in core CP-1 (Figure 21), showed a sharp decrease in core CP-2 at 200 cm and was about 50 ppm higher above the 200 cm depth than below that depth (Figure 21). Core CP-3, the control sample taken on the land side of the levee, also showed concentrations of Pb about 50 ppm higher in the upper 100 cm than below that level (Figure 22). The other metals follow the patterns of Pb in cores CP-2 and CP-3 although the differences are not as pronounced. This similarity of results between cores taken on both sides of the levee would seem to indicate that chemical analysis was not a viable method for establishing a marker horizon and dating rates of deposition.

Much remains to be learned regarding the use of such types of analyses for investigations in geomorphology and archeology, and maybe more questions than answers were raised by this investigation. For example: What do the results indicate about rates of deposition and possible markers? What types of variability in the depth-relationships occur in different depositional settings, i.e., point bar vs. floodplain? Does the location along the transect or distance from the thalweg affect the amount of deposition? Is contamination from underseepage or rainwater a factor in changing elemental composition? How does particle size distribution affect the distribution of elements, particularly since it is widely known that heavy metals are found in greater concentrations on fine-grained particles? How can the input of metals be better associated with dates and what types of isotopes are most applicable to this time period? What other types of laboratory analyses other than that of particle size and isotopes are important?

Further research along these lines with the above questions in mind could be important for understanding the implications of the results. Eventually, these results could aid archeological investigations in alluvial settings by finding the depths of various surfaces at which major natural events or changes in human activities took place.

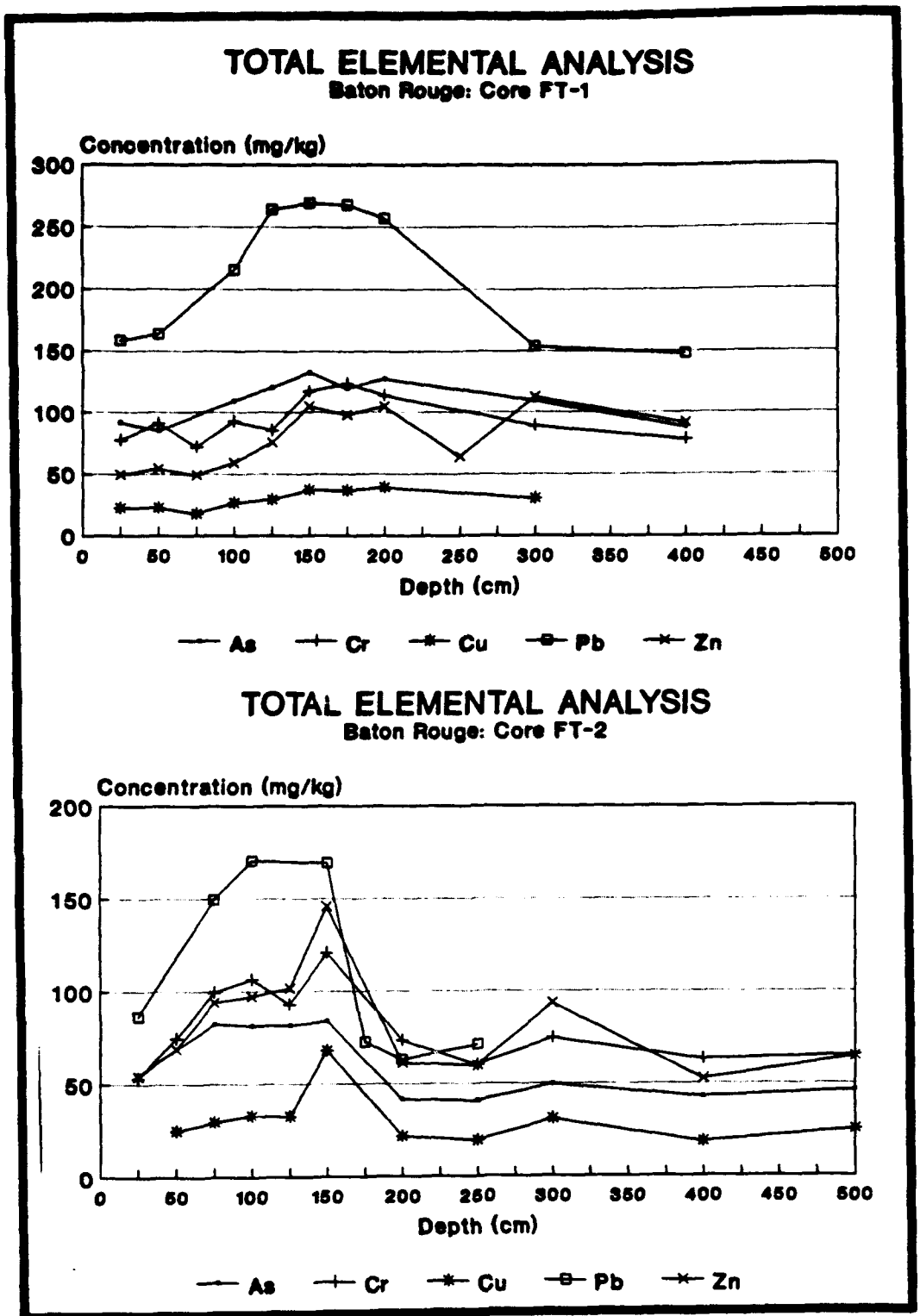


Figure 20: Concentration of 5 elements in upper transect, Core FT-1 and FT-2

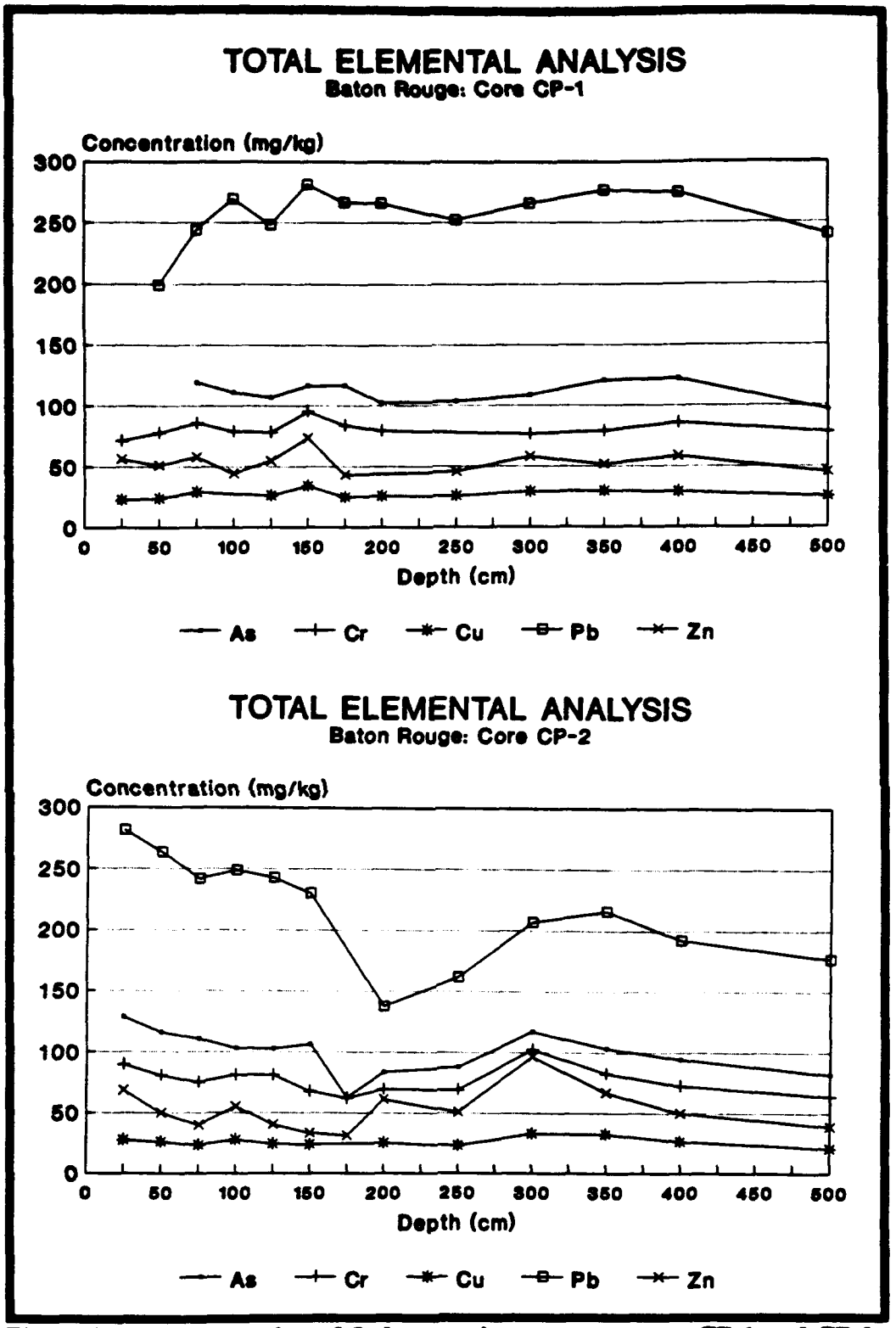


Figure 21: Concentration of 5 elements in upper transect, CP-1 and CP-2

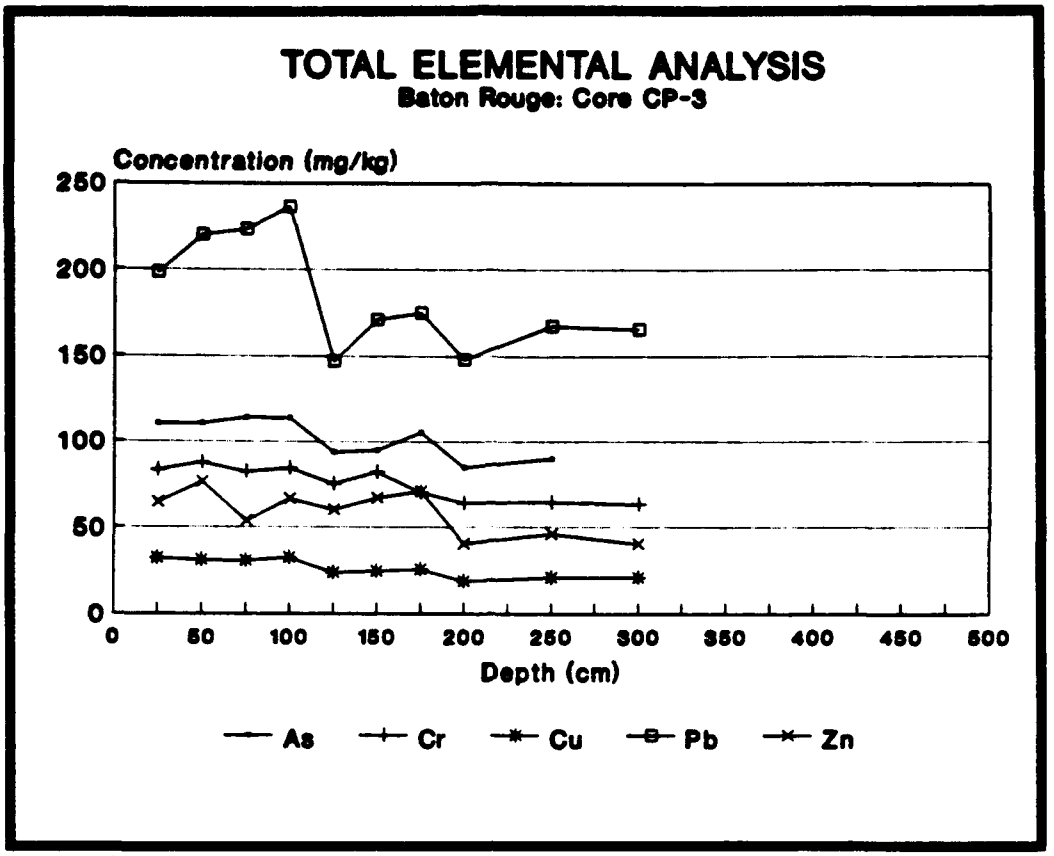


Figure 22: Concentration of 5 elements in upper transect, CP-3

CHAPTER V

PREVIOUS ARCHEOLOGICAL INVESTIGATIONS IN THE REGION OF THE PROJECT AREA

Although there are several reported sites in the environs of the project area, only a few have been the scene of extensive archeological work. Figure 23 notes all nearby reported archeological sites. During the nineteenth century, sites such as the LSU Campus Mounds (16EBR6), and the Kleinpeter Site (16EBR5), were noted in *DeBow's Review* (Neuman 1984). George Beyer, an early archeological investigator in Louisiana, also visited the Campus Mounds in 1898. None of these early reports went much beyond the description of these sites as local curiosities. Although C.B. Moore traveled past Baton Rouge several times during the early twentieth century during his explorations and investigations of prehistoric Indian sites, he apparently never reported or visited any sites near the current project area.

Academic Affiliated Archeological Research

Scientific archeology did not begin in earnest in Louisiana and the Lower Mississippi Valley until the WPA-LSU archeological projects in the late 1930s and early 1940s. One of the sites that was investigated and proved to be very influential in forming the prehistoric chronology for the Lower Mississippi Valley was the Medora Site (16WBR1) which is located approximately 0.8 mi due south and across the river from the southern boundary of the current project area.

Reported by George I. Quimby in 1951, the Medora Site was presented as the type site for the Plaquemine culture. Combining geomorphology and the archeological knowledge that had been produced to that date, Quimby concluded that the site was occupied from about A.D. 1300 to sometime just before French exploration on the Mississippi in the late seventeenth century. Ceramic types common to that site, such as Plaquemine Brushed, Addis Plain, among others, have served as markers of a Plaquemine culture at other sites in the Lower Mississippi Valley (Quimby 1951).

Several other sites in the region of the project area were also reported upon or investigated during this period. The Kleinpeter Site (16EBR5), although visited by archeologists in the late 1930s, had little archeological investigation at that time (Jones et al. 1991). Downstream from the Medora Site, the Bayou Goula Mounds (16IV11), were also excavated by the WPA. Again, George I. Quimby reported the site as one of early contact between Indian natives and early French explorers, namely Iberville (Quimby 1957).

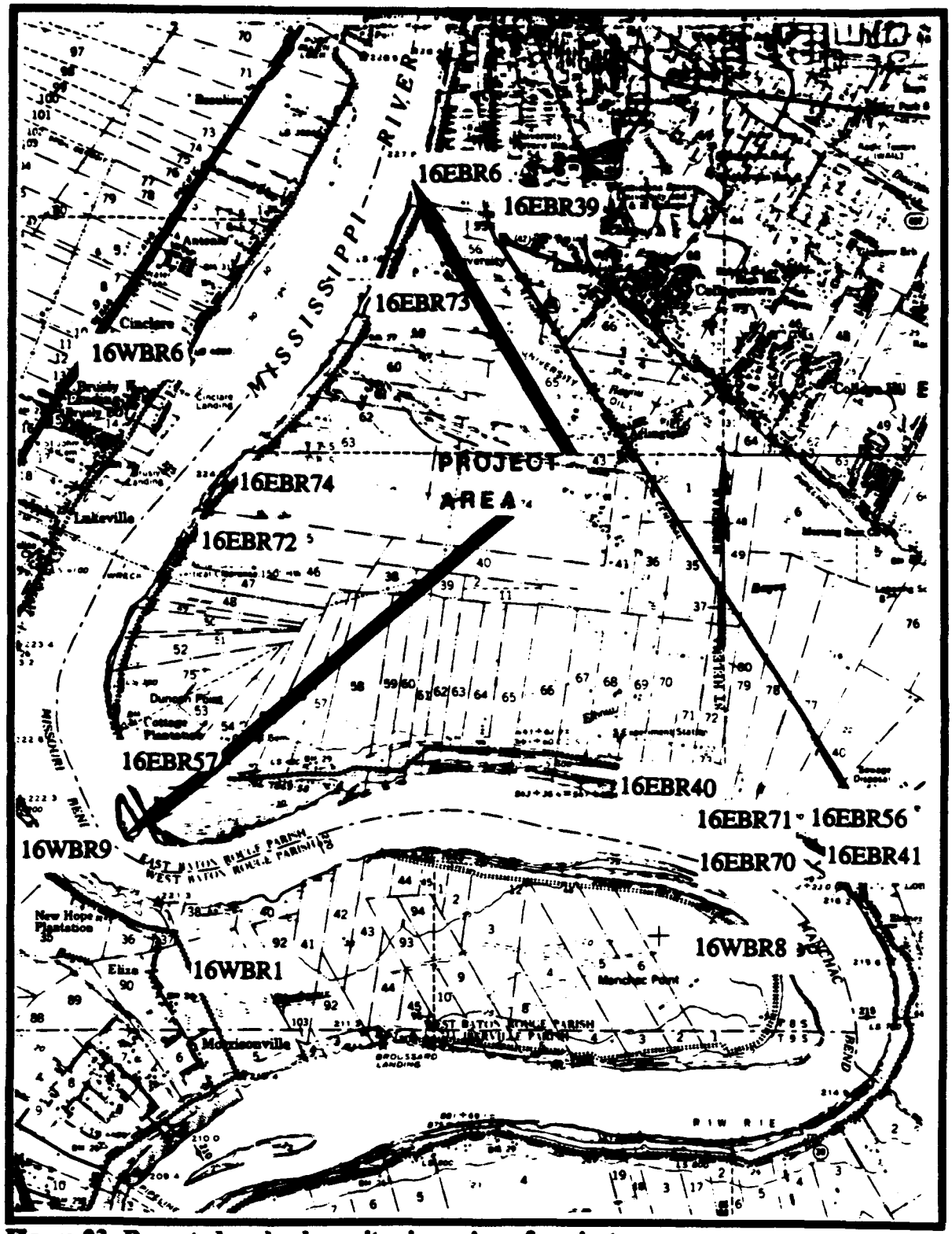


Figure 23: Reported archeology sites in region of project area

In 1982, Robert W. Neuman of Louisiana State University investigated the LSU Campus Mounds relying primarily on soil cores. He reported that the mounds were constructed from the same material as the Pleistocene terrace upon which they are located, and that each mound was probably built during a single stage of construction. Neuman (1984) also reported finding no prehistoric artifacts associated with the site. Neuman obtained humate radiocarbon dates from portions of the mounds, however, that pointed to an Archaic origin for these structures. In 1985, Jeffrey Homburg, then a graduate student in the Geography and Anthropology Department at Louisiana State University, conducted excavations in various portions at the base of the mounds before they were to be impacted by landscaping projects. This work, relying heavily on soil analysis, became the basis for Homburg's thesis at Louisiana State University (Homburg 1989). He found few artifacts which would aid in dating the mounds or determining their original functions and reiterated Neuman's conclusion that the mounds had potential Archaic origins (Homburg 1989:67).

In 1985, Richard A. Weinstein of Coastal Environments, Inc. reported on the archeological investigations at the Lee Site (16EBR51). This project investigated a thin prehistoric midden site at the base of the Pleistocene terrace (due east of the current project area) which forms the local limit of the Mississippi floodplain. The site contained artifacts from the middle Tchula or Tchefuncte period, as well as the Marksville, Baytown, and transitional Coles Creek periods. The earlier Tchefuncte component appeared to dominate the site and served to increase knowledge of Tchefuncte settlement patterns in the Lower Mississippi Valley (Weinstein 1985).

In 1986 and 1987, Dennis Jones and Malcolm Shuman from Louisiana State University, working on a project to map and update information on aboriginal mound sites, reported on the LSU Campus Mounds, the Medora Site, the Bayou Goula Site, and the Kleinpeter Site. The first known contour map of the Campus Mounds was produced; the Medora Site was relocated; the information on the Bayou Goula Site updated and corrected; and the importance of the Kleinpeter Site recognized (Jones and Shuman 1986, 1987).

Cultural Resources Surveys

In 1977, J. Richard Shenkel of the University of New Orleans, under contract to the U.S. Army Corps of Engineers, New Orleans District, conducted a cultural resources survey of the batture side of the levee from a point at Mile 227 near LSU to Mile 218 around Duncan or Conrad Point. Shenkel found the area to have been intensely impacted by erosion, alluvial deposition, and by construction activities associated with the levee. He also noted that historic landing places were reported on maps in that project area. No remains of those landings or any other cultural activity were found during Shenkel's survey (Shenkel 1977).

In 1989, David B. Kelley of Coastal Environments, Inc., also under contract to the New Orleans District of the Corps of Engineers, reported on cultural resources surveys in four areas of proposed revetment work along the Mississippi River. One of these areas was the Manchac Revetment Area (Kelley 1989), which was just downstream from Duncan or Conrad Point in the current project area. The entire survey area was on the batture side of the existing levee for 4600 ft (Kelley 1989:39).

Two archeological sites were newly reported in this portion of the project area. Site 16EBR70 consisted of a large concrete slab resting upside down. Other cultural debris associated with the site was recent trash such as bottles, cans, and bottle caps. Kelley interpreted this slab as a foundation for a large piece of machinery and had too little data to assign any date to the slab. Site 16EBR71 consisted of a thin layer of cultural material eroding from the bank line about 40 cm below the surface. Artifacts of glass, ceramics, and metal suggested a late nineteenth to early twentieth century domestic occupation that may have been associated with an area farm (Kelley 1989:60-67).

Additionally, two previously reported sites, 16EBR56 and 16EBR40, were investigated in the Manchac Revetment Area by Kelly (1989). The first, a former location of the Mission Church of the Nativity, was not relocated. The other, originally reported as a prehistoric site containing ceramics among *Rangia* shell, was relocated and tested. These test excavations found that the shell fill at the site was a recent deposit made for road fill and the aboriginal sherds originally reported were from the site where the shell had originated (Kelley 1989:67-71).

CHAPTER VI

PREHISTORIC CULTURE HISTORY OF THE REGION

Paleo-Indian Period - Prior to 8000 B.C.

The initial human occupation of Louisiana probably occurred during the late Pleistocene over 10,000 years ago. This occupation more than likely consisted of small bands of hunter-gatherers who were nomadic and possibly followed herds of now extinct megafauna such as the mammoth and the giant bison. The artifacts from this period are rare, but widespread throughout North America. They are especially rare in the Lower Mississippi Valley. The most readily identifiable artifacts consist of fluted lithic projectile points such as Clovis, Folsom, San Patrice and others (Webb 1981; Justice 1987). While Paleo-Indian sites occur in the Lower Mississippi Valley, they are not without controversy and none are located in the current project area.

Archaic Period - 8000 B.C. to 1500 B.C.

The change of climate that marked the end of the Pleistocene era led to an eventual change in the flora and fauna of North America, including Louisiana and the Lower Mississippi Valley. This, in turn, caused an apparent change in the lifeways of the inhabitants of the continent. With the extinction of large megafauna, hunting smaller game and gathering of seeds and nuts became the chief subsistence of prehistoric Indians during the so-called Archaic period. Sites of *in situ* remains from this period are also rare in Louisiana (Haag 1961). The Archaic sites present in the Lower Mississippi River Valley have a greater variety of lithic artifacts and bone tools, which may reflect increasing adaptation to environmental changes brought on by the end of the Pleistocene. Although pottery is not associated with the Archaic period, steatite vessels and basketry probably served as containers.

The appearance of the atlatl or dart thrower as a technology for launching projectiles is a widely recognized diagnostic artifact of the Archaic period (Neuman 1984). In addition to the dart points themselves, clay, stone, and even shell objects known as boatstones or bannerstones are thought to be possible weights added to the atlatl to increase the force of the dart launched by the throwing stick (Neuman 1984:79). While most Archaic sites in Louisiana are found in upland areas, away from alluvial valleys, this may be a product of alluvial deposition burying sites from this period, rather than an indication that such areas were avoided during the Archaic (Haag 1961).

Poverty Point Culture - 1500 B.C. to 800 B.C.

Out of the Archaic tradition, several new cultural developments occurred in various regions of North America. In the Lower Mississippi Valley, the Poverty Point period from around 1500 to 800 B.C. saw one of the most dramatic transitions from the Archaic. The Poverty Point Site (16WC5) in northeastern Louisiana, was unique for its large mound, concentric patterned earthen ridges, huge amount of baked clay objects, and apparent extensive trade network. This site is the type site for a culture that spread throughout the Lower Mississippi Valley and perhaps the Gulf Coast (Webb 1982; Neuman 1984). While dart points and boatstones continue to be associated with Poverty Point period sites, suggesting a continuation of Archaic subsistence techniques, there is increasing speculation that some horticulture may have taken place at Poverty Point (Webb 1982).

In the general region of the project area, the Monte Sano Mounds (16EBR17), destroyed by construction of a manufacturing plant in 1967, may have contained a Poverty Point component. In an *ad hoc* salvage archeological project, William G. Haag, James A. Ford, and Sherwood Gagliano collected data on the site. Artifacts and mound construction techniques found at the site at least suggested a Poverty Point cultural affiliation. In addition, radiocarbon dates from charcoal on a feature interpreted as a burial platform gave a date of 4,240 B.C. (Coastal Environments, Inc. 1977). Dr. Haag, however, has reservations about the veracity of such an early date (Haag, personal communication, 1988).

Tchefuncte Period - 500 B.C. to A.D. 200

Following the decline of the Poverty Point period, the archeological record of the Lower Mississippi Valley is somewhat confused. In parts of the region, the succeeding culture is the Tchefuncte, which is generally regarded as less complex than the preceding Poverty Point period. The Tchefuncte period did exhibit one generally recognized technological achievement: the wide spread production and use of pottery (Ford and Quimby 1945). Originally associated with coastal regions, it has been ascertained that this culture, which essentially added ceramics to techniques associated with the preceding Poverty Point period, extended northward beyond coastal regions (Neuman 1984; Toth 1988:19-21). Usually recognized by their ceramics, Tchefuncte sites are relatively few in number, and composed of small hunting camps that suggest a partially nomadic existence. Human remains and seed evidence, however, suggest that this period had the rudiments of agriculture, or perhaps more aptly, horticulture (Neuman 1984; Weinstein and Rivet 1978).

The Lee Site (16EBR51), which was investigated during a research project headed by Richard Weinstein of Coastal Environments, Inc., was found to be a multicomponent midden site containing Tchefuncte cultural material (Weinstein 1985). This site, located

at the base of the Pleistocene terrace to the east of the project area, suggests a subsistence based on the exploitation of a poorly drained floodplain environment.

At the nearby Kleinpeter Site (16EBR5), Tchefuncte period ceramic sherds have also been found in surface collections from the site. These sherds, as at the Lee Site (16EBR51), were found at the base of the Pleistocene terrace, which suggests the same sort of sporadic exploitation of a riverine/floodplain environment.

Marksville Culture - 100 B.C. to A.D. 400

The Marksville culture, with its complex type site located on the eastern edge of the Avoyelles Prairie terrace in Avoyelles Parish, is interpreted as a southern manifestation of the Hopewell culture. Characteristic pottery types, conical burial mounds, and elaborate earthworks all point to some sort of connection with the Hopewell in the Ohio River Valley. While excavations sponsored by the Works Projects Administration (WPA) at the Marksville Site have unfortunately gone unreported, an admirable synthesis of available data from this site has been organized by Alan Toth (1974). Toth and previous investigators have long noted that the characteristic conical mounds of the Marksville period were once in far greater number than they are today, and that the sample now available for archeological study is only a fraction of what once existed. Also, Toth laments the focus of study on the Marksville period upon the mounds and the burial practices of this era. He feels that additional data on subsistence and settlement patterns would increase our understanding of the Marksville period (Toth 1988).

Close to the project area, the above mentioned multi-component Lee Site (16EBR51), also revealed Marksville period artifacts (Weinstein 1985). It should be noted that the LSU Campus Mounds (16EBR6), are two conical shaped mounds. This mound morphology has frequently been associated with the Marksville culture. Radiocarbon dates from humates in the buried A horizon below the mounds, however, have produced much earlier dates that suggest an Archaic period origin for the mounds (Homburg 1989). The multi-component Kleinpeter Site (16EBR5), located 10 mi southeast of the project area also contained evidence of a Marksville period occupation (Jones et al. 1991).

Troyville-Baytown Period - A.D. 300 to A.D. 700

Following the Marksville period is a loosely labelled period termed Troyville, named after the type-site at Jonesville, Louisiana. Troyville is generally regarded as a transitional time leading to the cultural florescence of the later Coles Creek period in the Lower Mississippi Valley. Although the diagnostic traits of this period are still debated and less definite, ceramic types and the beginnings of platform mound construction are

usually cited to identify Troyville period sites. The Troyville Site had at least nine mounds and an earthen embankment that restricted access to most of the mounds. The area was made further inaccessible by the natural boundaries of the Little and Black Rivers. James A. Ford (1951) noted differences in the ceramics at the Troyville Site from those associated with the Marksville period and those of the later Coles Creek period. Later analysts proposed that the Troyville period be expanded to include Baytown ceramics from the Yazoo and St. Francis River Basins, and be considered a somewhat less than distinctive period that has many continuities stretching into Coles Creek times (Gibson 1982). The construction of platform mounds, as opposed to the conical mounds typical of the Marksville period, was apparently first practiced in the Troyville-Baytown period. Near the project area, some prehistoric sites such as the Smithfield Site (16WBR3) and the Kleinpeter Site (16EBR5) seem to have a Baytown component (Phillips 1970; Jones and Shuman 1987; Jones et al. 1991).

Coles Creek Period- A.D. 700 to A.D. 1200

The Coles Creek period is one of the most widespread and clearly defined archeological horizons in the Lower Mississippi Valley. It is recognized by several diagnostic pottery types including French Fork Incised and Coles Creek Incised, among others, and by the continuation and refinement of earthen pyramidal platform mounds in groups or singly. The Kleinpeter Site (16EBR5) and the State Capitol Mound (16EBR25) are the closest mound sites to the project area which show a definite Coles Creek period component (Jones and Shuman 1986; Jones et al. 1991).

Plaquemine-*Caddo* Cultures - A.D. *1200 to* A.D. 1550

Concomitantly and following the Coles Creek period, several cultural developments occurred in portions of the Southeast. The Caddo culture, which is often associated with northwestern Louisiana and the Red River, enjoyed something of a florescence and was influenced by a number of surrounding cultures, perhaps even as far away as Mesoamerica (Neuman 1984:218). Sometime after A.D. 1000, the Plaquemine phenomenon, originally defined by the Medora Site (16WBR1), on the Mississippi River below Baton Rouge, continued the mound building tradition, showed definite evidence of maize agriculture, and exhibited specific pottery types such as Plaquemine Brushed, L'Eau Noire Incised, and Harrison Bayou Incised (Quimby 1951; Phillips 1970).

The Medora Site (16WBR1), the type site for the Plaquemine culture, is located 0.8 mi south of the project area (Quimby 1951). Plaquemine period cultural material is also well represented at the Kleinpeter Site (16EBR5) (Jones et al. 1991).

The late prehistoric scene that preceded the entry of the Lower Mississippi Valley into the historic period was characterized by a fairly extensive aboriginal presence, although probably less so than during the Coles Creek period. Mound building, while

still extant among some groups, was generally on the decline. Maize agriculture, among other cultigens, provided a subsistence base that was augmented by continued hunting and gathering. Some groups were organized into large and populous chiefdoms with a fair degree of sedentism. Other groups were smaller, more simply organized, and more likely to be nomadic or semi-nomadic (Kniffen et al. 1987).

CHAPTER VII

HISTORIC PERIOD OF THE PROJECT AREA

Contact and Colonialism

The first Europeans to view Baton Rouge and the surrounding area were probably the survivors of de Soto's army who built boats at the Indian site of Guachoya in 1543 and headed down the Mississippi in search of other Spaniards. No mention is made in the chronicle's of de Soto's *entrada* of any landmark that can be definitely associated with Baton Rouge (Swanton 1985). Likewise, accounts of Robert Cavalier, Sieur de La Salle's descent of the Mississippi River about 140 years later, which resulted in a French claim on all the Mississippi Valley, made no specific mention of Baton Rouge (Parker 1910).

Wars in Europe held the attention of the French until 1697 when they focused once again on their New World claims. The French were inspired by the knowledge of British penetration of the interior of North America by way of the Tennessee and Ohio Rivers. This prompted the French to hurry their efforts to found a colony in Louisiana, and in October 1698, an expedition designed for that very mission left France under the direction of Pierre Le Moyne, Sieur d'Iberville. Specifically, d'Iberville sought the mouth of the Mississippi River in order to reinforce French claims of sovereignty over that stream.

On January 31, 1699, Iberville's ships, *La Badine* and *Le Marin*, anchored off Mobile Bay. Judging the water to be too shallow, Iberville set up a base camp at Biloxi Bay. Desiring to reach the Mississippi, he left Biloxi on February 27 in two Biscayan longboats carrying about 50 Canadians and crewmen from Saint Dominigue. Iberville and his party entered the mouth of the Mississippi on March 2 and promptly traveled upstream (Giraud 1974:31-32).

Iberville passed a village of the Biloxi Indians on the east bank of the river and also stopped in a village that two tribes, the Bayogoulas and the Mugulashas, occupied together on the west bank. This site is thought to be the Bayou Goula Site (16IV11). They left this village on March 16, 1699, and with the guidance of the chief of the Bayogoulas, arrived at the present day Bayou Manchac which is about 5 mi southeast of the project area. While Manchac is a Choctaw word meaning "rear entrance," the Bayogoula name for the river was *Ascanthya* or *Ascanthia*. The Bayogoula chief informed Iberville that this stream was a "shortcut" by which the Indians traveled to the Gulf of Mexico, via Lakes Maurepas and Pontchartrain, saving them the time and effort required for a trip down to the mouth of the Mississippi River.

Iberville continued upstream on the Mississippi River and on March 17, his party came to the "Baton Rouge" which was a dividing line between the Ouma's and Bayogoula's hunting ground.

> *Five leagues and a half from our last stop for the night we came on the right side of the river to a little stream in which the Indians informed us that there were great numbers of fish. Here I had nets set out but caught only two catfish. The Indians having stopped 2 leagues below to hunt bear, where they say there are a great many, my brother stayed with them. This stream is the dividing line between the Ouma's hunting ground and the Bayogoula's. On the bank are many huts roofed with palmettos and a maypole with no limbs, painted red, several fish heads and bear bones being tied to it as a sacrifice. The area is extremely fine. (McWilliams 1981:65).*

Another member of the expedition, Andre Penicault, later wrote that five leagues above Bayou Manchac, they:

> *found very high banks called "ecorr" [bluffs] in the region, and in savage called "Istrouma", which means red stick, as at this place there is a post painted red that the savages have sunk there to mark the land line between the two nations, namely: the land of the Bayagoulas [sic], which we were leaving, and land of another nation--thirty leagues upstream from the "baton rouge"--named the Ouma (McWilliams 1953:25).*

It is probable that Penicault's use of the word "Istrouma" is a corruption of the Choctaw work for the red pole which is "iti humma" (Read 1931:514-515).

After continuing upstream and establishing relations with the Houma tribe in the area of present day Angola prison, Iberville returned to Bayou Manchac. Seeing that the stream was too clogged with uprooted trees to get the longboats through it, he sent most of his crew on toward the mouth of the Mississippi. With a Mugulasha guide and four members of his crew, Iberville and his party set out in two bark canoes to investigate this short cut to the Gulf (McWilliams 1981:80).

Iberville reported that Bayou Manchac was "no more than 8 or 10 yards wide, being full of uprooted trees, which obstruct it" (McWilliams 1981:80). He made several portages within the first two leagues of the Bayou from the Mississippi. The next day, March 25, 1699, found Iberville at the confluence of Bayous Fountain and Alligator with Bayou Manchac and in the region of the Kleinpeter Site (16EBR5). He noted six pirogues on the banks there and the apparent abundance of fish and game. His Indian guide abandoned his charges here and the party was left on its own to reach the Gulf and the remaining crew. Fortunately for Iberville and the future of French colonialism in the region, he did find his way to the Gulf and was reunited with the rest of his fleet on

March 31. For decades afterwards, the stream that is now called Bayou Manchac was known as the Iberville River to commemorate his discovery voyage (Figure 24).

French Settlement

In 1717, the French began to take steps to settle the banks of the Mississippi River with the establishment of the Company of the West, later called the Company of the Indies. The Company was responsible for encouraging settlers to travel to Louisiana and for founding in 1718 the city of New Orleans. The Company also began to grant land in the colony to individuals for development. One of the concessions was located at Baton Rouge and went to Captain Diron Dartaguette, Inspector General of the French troops and militia, and brother of one of the original directors of the Company of the West. Dartaguette described his concession as being at "Dirombourg, or Baton Rouge, which is on the right side as you ascend. These are the first bluffs or steep banks which we have found on the Mississippi" (Albrecht 1945:62).

Settlement and development of Dartaguette's concession at Baton Rouge was well under way by the summer of 1721. Attention was given first to raising cattle, and then to planting crops (Albrecht 1945:61). In November of 1721, Captain Dartaguette, in an addendum to the census he was carrying out, stated that his concession:

> *is located at Baton Rouge, 40 leagues above New Orleans. The land there is very fine and there are many prairies. Half of this concession is burned over. They have tried to increase the fields. Last year rice and vegetables were harvested. There are at this concession about 30 whites and 20 negroes and 2 Indian slaves" (Beer 1930:223).*

The Dartaguette concession was visited by Father Pierre Francois Xavier Charlevoix who had left Natchez for New Orleans in late 1721. On January 1, 1722, Charlevoix "said mass about three leagues from the habitation of Madam de Mezieres, in a grant belonging to M. Diron d'Artaguette, inspector general of the troops of Louisiana. We stayed the whole day in this grant, which is no farther advanced than the rest, and is called le Baton Rouge, or the Red-Staff Plantation" (Charlevoix 1977:164-65). A census taken in May 1722 seems to indicate that the Dartaguette concession was already deteriorating, for it only consisted of 10 men, 5 women, and 2 children (Maudell 1972:28).

Between 1722 and 1726, the Dartaguette Plantation at Baton Rouge was abandoned. A census dated January 1, 1726, passes to the village of Pointe Coupee, some miles upstream, without mention of Baton Rouge (Maduell 1972:52). On June 4, 1727, Father Paul du Poisson stopped at the site on his way to the Arkansas Post from New Orleans. That night his party "slept at Baton Rouge, this place is named thus because of a tree painted red by the savages is there, which serves the tribes that are

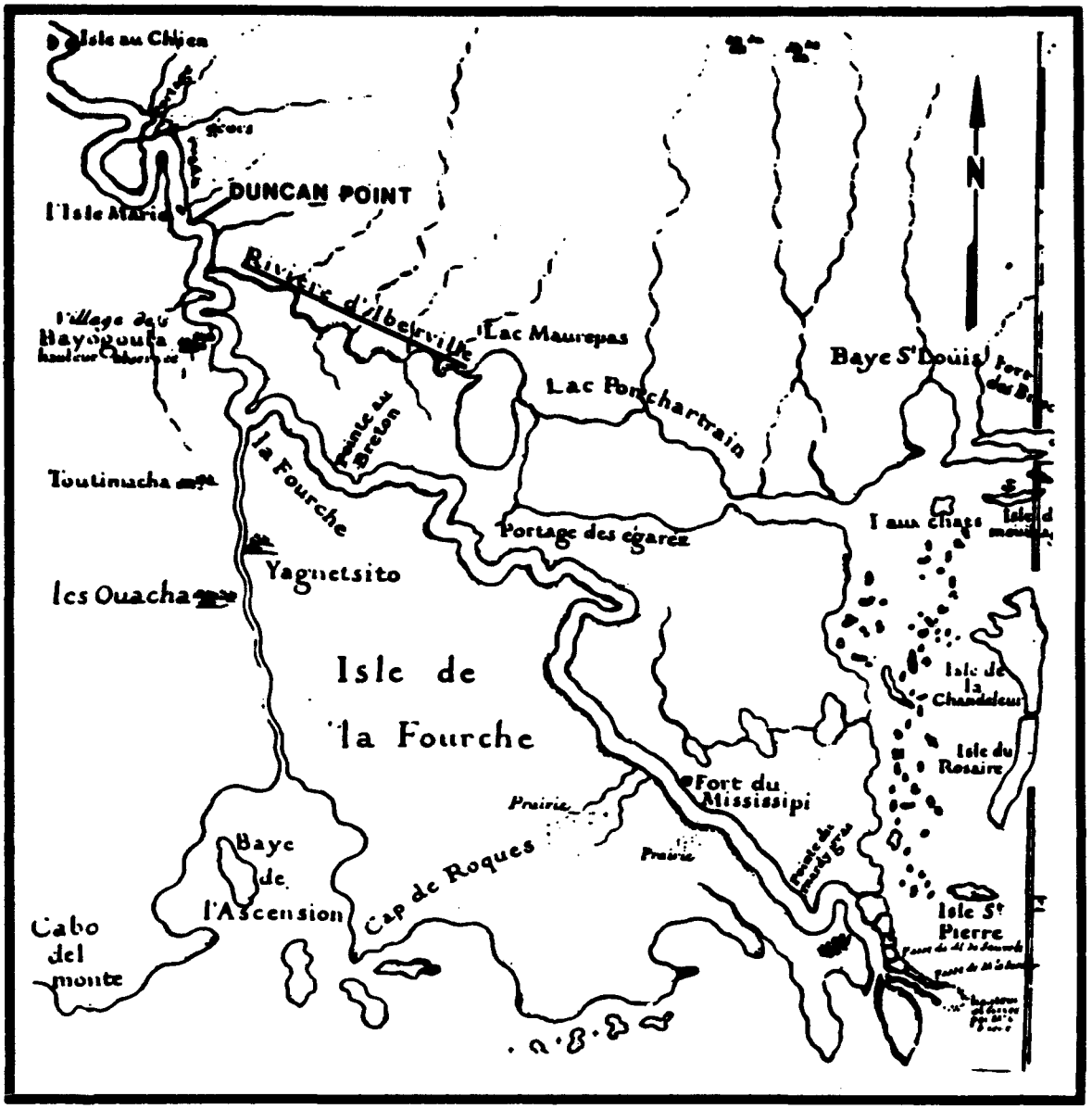


Figure 24: Detail of Guillaume De Isle's 1702 *Carte de la Mississippi* showing the Iberville River (Bayou Manchac) and Duncan Point. Source: LSU Cartographic Information Center

above and below it as a boundary in hunting. Here we found the remains of a French habitation, abandoned on account of wild animals--deer, rabbits, wild cats, and bears--that had laid waste to everything" (Thwaites 1896-1901:LXVII, 303).

It is doubtful that wild animals forced the abandonment of Baton Rouge. More likely it was due to the lack of support by the Company, which continually failed to bring enough supplies to the concessionaires. Another reason might be the lack of effort that Captain Dartaguette put into his plantation. It seems that he had his hands full as inspector general and did not contribute enough attention to Baton Rouge. Whatever the reason, while Baton Rouge is shown on d'Anville's 1732 map, it is overlooked on a 1743 map. A census taken in 1745 gave the population of Pointe Coupee as 200 whites and 400 blacks with no mention of Baton Rouge. It was not until the British took over West Florida in 1763, that Baton Rouge was once again resettled (Meyers 1976:17).

English Settlement

During the Seven Years War, the English captured the important Spanish port of Havana on the isle of Cuba. At the Paris bargaining table in 1763, England exchanged Havana for the Spanish colony of Florida and the boundary between Florida and Louisiana was set at the Indian route that Iberville had taken 64 years before: Bayou Manchac, Lake Maurepas, and Lake Pontchartrain. The Spanish retained control of New Orleans and the mouth of the Mississippi River.

The British were uneasy about part of the water route from their new territories in Illinois to the Gulf of Mexico being in the hands of a potentially hostile power. In addition, they wanted control of the fur trade of the Mississippi Valley. For this reason, the British envisioned a post at the junction of the Iberville River (Bayou Manchac) and the Mississippi. The British were also determined to make the Iberville navigable for large ships, thus connecting the Mississippi with the rest of British Florida without needing to travel through Spanish controlled New Orleans (Brown 1946:492-93).

The Iberville River was first inspected by the British in March 1764, during an expedition led by Major Arthur Loftus that passed by on its way to occupy Fort Chartres in Illinois. Captain-Lieutenant James Campbell, as part of that expedition, proposed that by clearing the area closest to the Mississippi River, the Iberville River would be navigable. Campbell obtained 50 blacks and some British deserters for the job and in October of 1764, when the stream was dry, they cut trees and cleared a path for about eight miles eastward from the Mississippi. The intention was that with the next inundation of the stream by the floodwaters of the Mississippi all the debris would be washed away (Dalrymple 1978:12).

After Loftus' force was turned back by an Indian ambush that possibly had French support, at Roche Davion (now Fort Adams, Mississippi), a British fort was set up on

the north bank of the mouth of the Iberville River. Named Fort Bute, and manned by regular British troops, this installation was an attempt to guard the international boundary and to protect British interests against Spanish, French, or Indian depredations. However, in July of 1765 the fort was overrun by neighboring Indians when the military detachment was in service elsewhere. The fort was later reoccupied and garrisoned (Dalrymple 1978:11-14).

In 1768, Philip Pittman, a British military engineer visited Fort Bute. Pittman, who surveyed the Iberville and wrote *The Present State of the European Settlements of the Mississippi* in 1770, found the Iberville River to be nothing more than a small creek, supplied with

> *water by the Mississippi and Amit [sic]. From March to September the former generally affords enough water to make navigation through...More than six miles of the passage of the river Ibbeville [sic] is chooked [sic] up by wood, which has been drawn in by the eddy from the Mississippi at the annual floods. The river, for six miles below its entrance, is not in general above fifty feet wide; many large trees had fallen across the river, which stopped the logs that were floating down, and so formed a barricado (Pittman 1973:27-31).*

Additionally, Pittman reported on an Indian village along Bayou Manchac that he called *Anatamaha*, which is probably the location of the Kleinpeter Site (16EBR5) (Jones et al. 1991).

The condition of the river according to Pittman was in direct contradiction to a report that the governor of West Florida, George Johnstone, had written in December of 1764, which stated that "passage by the Ibberville [sic] to the Mississippi is now so opened and cleared by Captain Campbell, that it may be depended upon as a Fact; that Vessels of six feet Water may pass from Lake Pontchartrain thro' this Channel as soon as the Mississippi rises" (Rowland 1930:263).

Fort Bute was described in 1767 as being built about one-fourth mile from Point Iberville at the confluence of the two rivers and about 100 yards from the Mississippi River. In response, the Spanish built Fort San Gabriel de Manchac on the south side of the Iberville, across from Fort Bute (Casey 1983:34) (Figure 25).

Efforts to clear the Manchac or Iberville were not resumed until 1768, when Lieutenant Alexander Fraser began operations. In June, the high water of the Mississippi flowing into the Iberville made it possible to sail a supply ship down the Amite to Fort Bute. However, when Fraser attempted to return in July his boats and cargo got stuck and had to be abandoned. In the muddy bed of the Iberville, Fraser found logs from previous clearings, which attested to his predecessors' incompetence. Fraser felt that boats drawing over five feet of water would be unable to use the passage even in flood

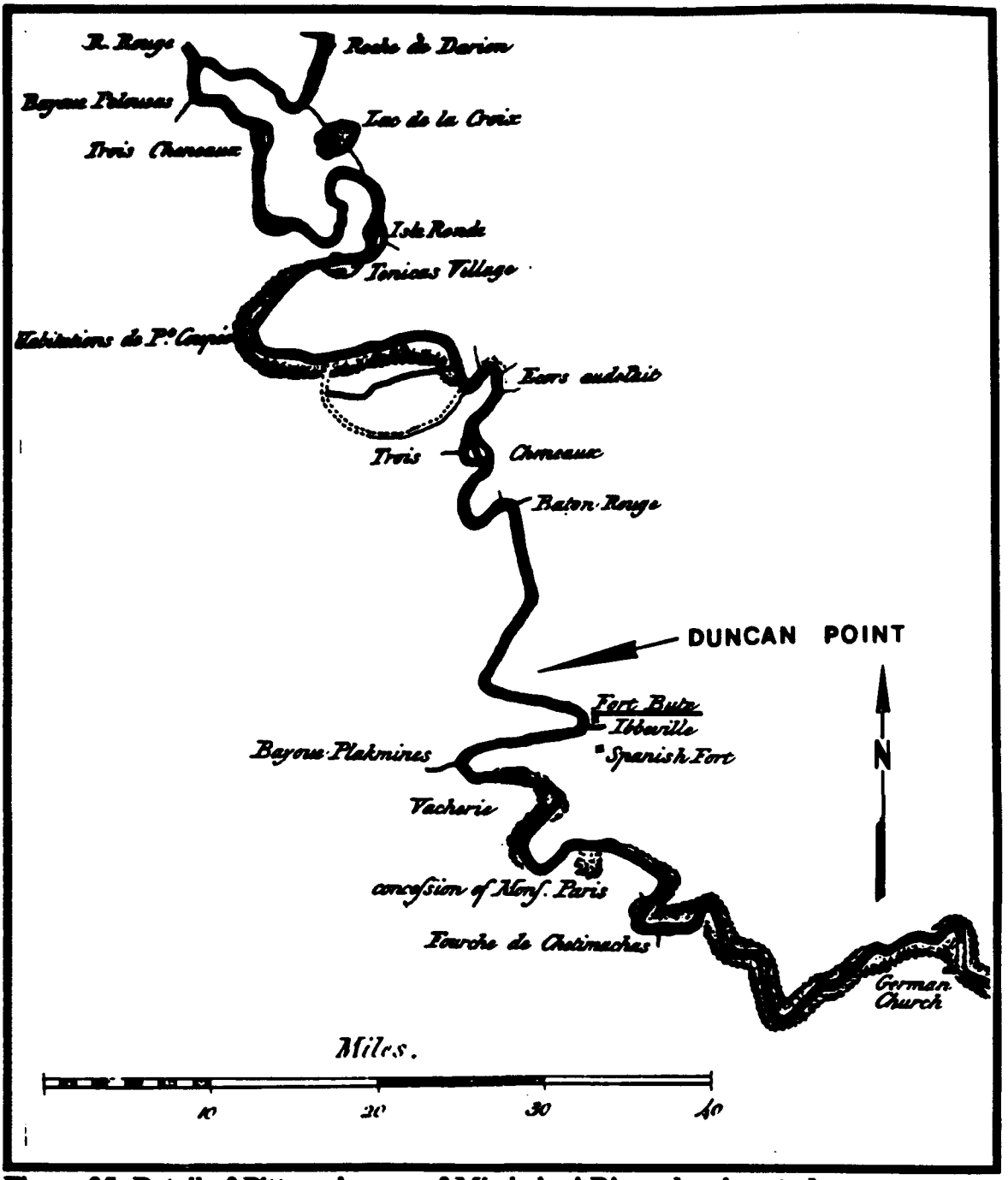


Figure 25: Detail of Pittman's map of Mississippi River showing study area. Source: Pittman 1973

tide. Because of the inability to make the Iberville route navigable, the British high command decided to abandon Fort Bute in 1768 (Brown 1946:506). For the next few years the British continued to discuss plans for clearing the Iberville or digging a canal from the Mississippi to a point further up than the mouth. The outbreak of the American Revolutionary War, however, put an end to all British plans for Bayou Manchac (Brown 1946:514-15).

In the meantime, British civilians began to settle north of the Iberville in the Baton Rouge district. Planters and other settlers, engaged in both subsistence and plantation styles of agriculture, settled along the Mississippi River. The British also issued land grants for parcels along the eastern bank of the Mississippi River, although many of them were never occupied. Maps from the British colonial period show both actual inhabitants and the boundaries of land grants within the project area, although many of these grants were probably never occupied by the grantees (Newton 1989). One of the settlers in the area was William Dunbar, a native of Scotland, who eventually became an important man of science and government in the region. Dunbar owned 500 ac just north of Baton Rouge, but this was one of his less important holdings. His main home and base of operations was in Natchez.

Interestingly, the Gauld Map (Figure 26) and the Durnford Map (Figure 27) both show an "Alibama Village" on the east bank of the Mississippi River between Conrad Point and Bayou Manchac. This same Indian village was visited by the noted British traveler and naturalist William Bartram who voyaged in the region of the project area in 1777. Bartram described the village as: "delightfully situated on several swelling green hills, gradually ascending from the verge of the river: the people are a remnant of the ancient Alabama nation, who inhabited the East arm of the great Mobile river, which bears their name to this day...(Bartram 1940:342). John R. Swanton reports that this band of the Alabama nation remained at this location on the Mississippi until 1784 (Swanton 1979:87). During the late eighteenth century and into the early nineteenth century this and other groups of the Alabama people migrated throughout Louisiana, Texas and Oklahoma. They became enmeshed in late colonial period and early American rivalries and land holding policies which inspired much of their migration (Kniffen et al. 1987).

Revolutionary War and American Occupation

The British colonists in West Florida resisted American efforts to enlist them and in 1778 James Willing was commissioned by the rebels to take a well-armed force to West Florida and demand that the British colonists there take an oath of neutrality (Meyers 1976:33). In late February of 1778, Willing's forces seized what was left of Fort Bute which the British appeared to be preparing to reoccupy. Willing left a party of about 40 men there who were later dispersed by British volunteers under Adam Chrytie (Casey 1983:35; Rowland 1930:63).

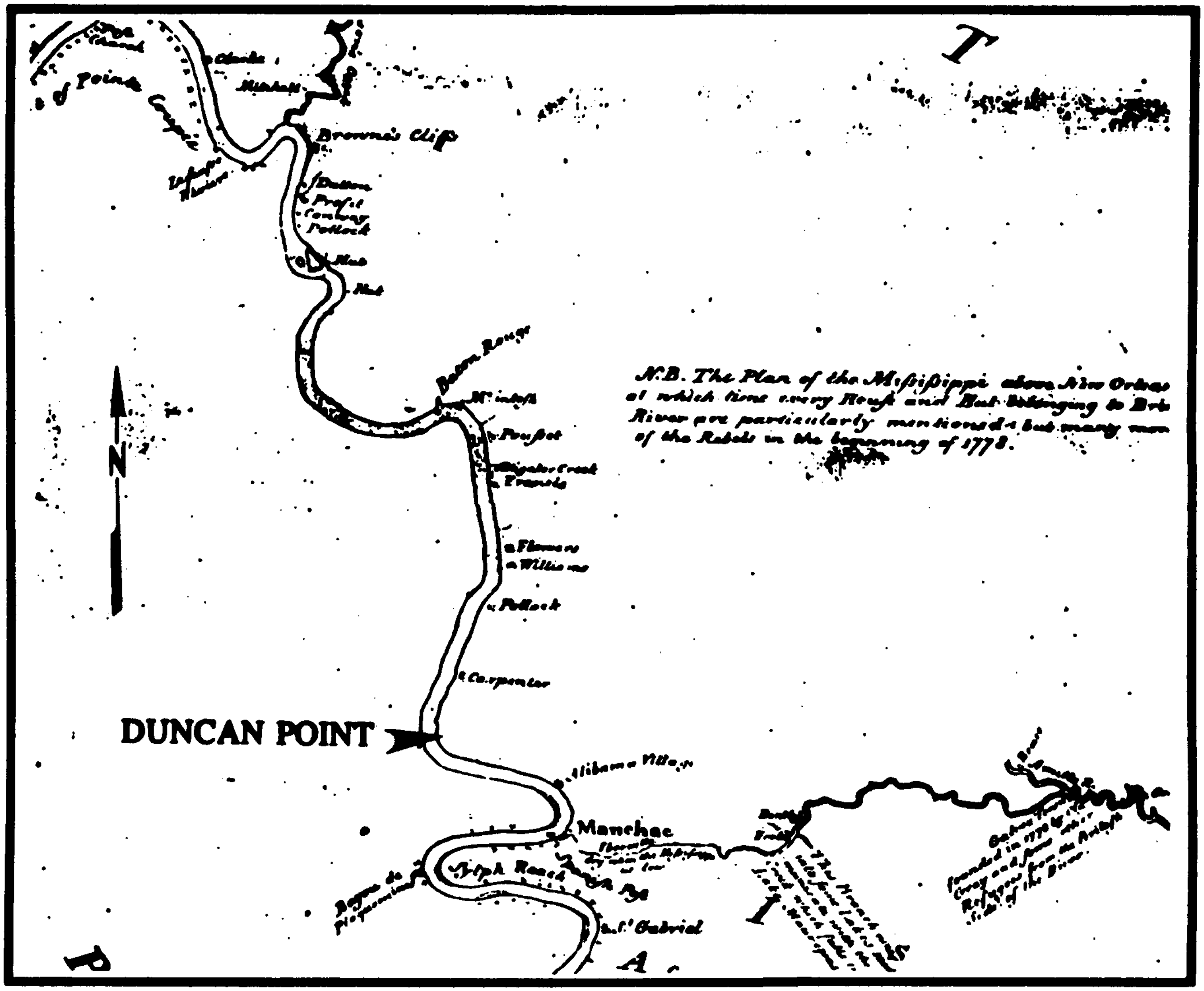


Figure 26: The Mississippi River from Bayou Manchac to Point Coupee', showing settlements and plantations. Detail of George Gauld, 1778, "A Plan of the Coast of Part of West Florida and Louisiana including the River Mississippi from its entrances as high as the River Yazous." Source: LSU Cartographic Information Center

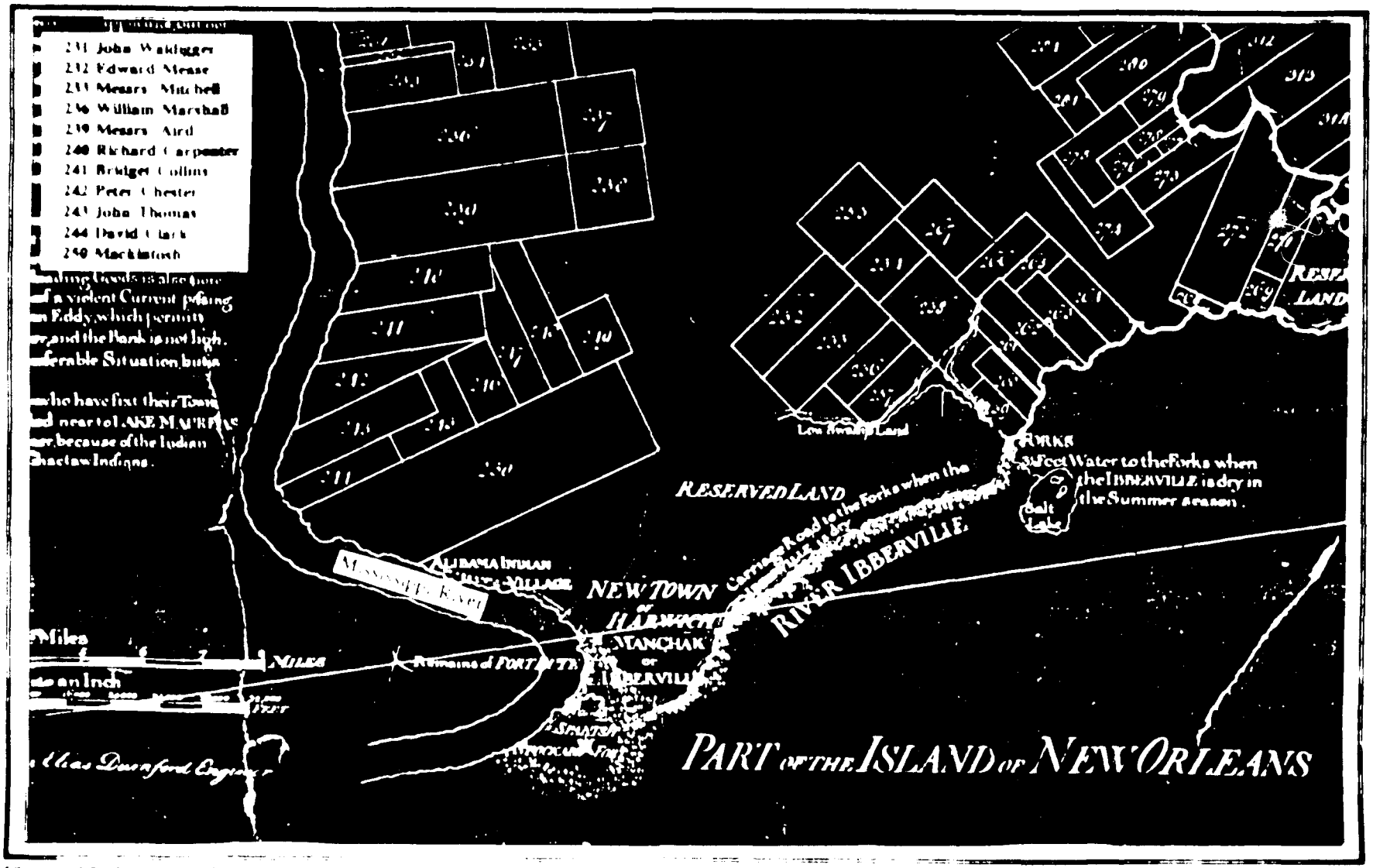


Figure 27. Portion of Elias Durnford Map (1724) covering portion of project area. Inset lists names of land grantees in the vicinity of the project area. Source: LSU Hill Memorial Library.

Willing proceeded up the Mississippi, and instead of requesting oaths of neutrality, he stopped at several plantations, burning buildings and stealing slaves. A good many of the British planters around the river, including William Dunbar, on hearing of Willing's approach, took their slaves and crossed the river into Spanish territory. Dunbar returned to find his plantation pillaged and soon abandoned his holdings near Baton Rouge. Other property owners were also devastated by Willing's raid. William Dunbar mentions Harry Stuart, "Cuming's Plantation," "the property at Castle's," Mr. Walker's plantation, Dutton, Poupett and Marshall as some of the people or places that suffered the destruction wrought by the "vagabonds and rascalls [sic]" associated with Willing (Rowland 1930:60-63; Meyers 1976:33).

Following Willing's raid, the British took steps to protect their position in West Florida. At the beginning of June, a detachment of troops from Pensacola reoccupied the "post at Manshac," [sic] or Fort Bute, and built a stockade fort. The British commander for the area, Lieutenant Colonel Alexander Dickson, also ordered a dirt fort to be constructed on the east bank of the Mississippi River at Baton Rouge on property owned by Dr. Samuel Fowler and Stephen Watts (Rowland 1930:63; Casey 1983:16).

Spanish Control of Baton Rouge

Spain declared war on Great Britain in June of 1779 and Dickson prepared for battle by increasing the fortifications at the Baton Rouge post. By September, the fort was surrounded by a ditch 18 ft wide and 9 ft deep. Inside the ditch was an earthen wall, and outside it a circle of palisades. The armament consisted of 13 cannon. Four hundred regulars and 150 settlers and armed black slaves made up its garrison. Most of the troops had been removed from Fort Bute, which Dickson considered to be indefensible. The British fortifications at Baton Rouge was located just south of the present day Pentagon Barracks near where Spanish Town Road intersects Lafayette Street (Caughey 1934:155; Casey 1983:16).

In the late summer of 1779, the Spanish governor of Louisiana, Bernardo de Galvez, began putting together an army with which to attack the British. On August 27, Galvez set out from New Orleans with an army that eventually totalled 1427 combatants, of every class and color, including 160 Indians (Caughey 1934:153-54).

On September 7, 1779, Galvez took the 26 British soldiers occupying Fort Bute by surprise and, after a few days, headed on to Baton Rouge. Galvez found the fort there too well fortified to attack with infantry, so he decided to reduce it by artillery. On the night of September 20, Galvez sent a detachment toward a grove of trees near the fort as a ruse. While the British occupied themselves with this force, the Spanish set up their cannon in a garden on the opposite side of the fort. The Spanish guns were so well sheltered that the British were unable to force their removal.

After this, it was just a matter of time before the British surrendered. The Spanish batteries opened fire early on September 21, and at three in the afternoon, the British submitted. Shortly thereafter, Galvez forced Dickson to surrender Fort Panmure at Natchez. With the lower Mississippi Valley under Spanish control, Galvez went on in 1780 and 1781 to capture Mobile and Pensacola, putting an end to British control of West Florida (Caughey 1934:156-57).

After the surrender of Fort Baton Rouge (or New Richmond as the British called it), Don Carlos de Grand Pre was given command of the District. On September 25, 1779, a civil decree was issued which required the people of Baton Rouge to take an oath of loyalty to the Spanish flag. Residents had six days in which to comply and most did so (Meyers 1976:42-43).

Pedro Jose Favrot served as commandant of the Spanish post at Baton Rouge, called Fort San Carlos, which was the redesigned British fort. Between 1779 and 1781, Captain Pedro Jose Favrot spent 2,472 pesos to have the fort rebuilt. However, by 1794, it was reported that the fort was in ruins. During the Spanish possession the garrison at the fort varied from 15 to 50 men except when larger numbers of troops were brought in from Pensacola for short stays (Casey 1983:17).

By 1788, Baton Rouge had a population of 682 (Carleton 1981:22). Economically, the plantation economy established by the British occupation, continued under the Spanish. Although indigo was grown, cotton and corn were easily the most important crops until the mid 1790s, when sugar cane began to dominate (Meyers 1976:55).

English speaking settlers began to arrive in the area following the Revolutionary War and took advantage of the liberal land policies of the Spanish. The town of Baton Rouge grew up around Fort San Carlos. By 1805, the population grew to 3,820 (Meyers 1976:64-67).

An American, Fortescue Cuming, passed through Baton Rouge in 1809, and described the city. As he approached from the north, Cuming noted that

> *about half a dozen tolerably good frame (or wooden) houses [were] scattered on an extensive plain surrounded on 3 sides by woods at a little distance... A duty [sic] little town of 60 cabins crowded together in a narrow street on the river bank, penned in between the Mississippi and a steep hill descending from the plain filled up the fourth side. I walked through the village--it is a right French one--almost every other house being a petty shop for the sale of bread, tobacco, pumpkins, and taffia (or bad rum) distilled at the sugar plantations a little lower down the river (Thwaites 1904-07:IV, 341).*

In 1803, the United States purchased Louisiana from France, who had recently reacquired it from Spain. Although President Thomas Jefferson believed that West Florida was included in the Louisiana Purchase, the Spanish did not immediately withdraw from the area, and so it remained in Spanish hands.

Many of the English speaking settlers in West Florida, wished to make their territory part of the United States. In August of 1804, Nathan and Samuel Kemper, with 30 followers, marched on Baton Rouge in an attempt to overthrow the Spanish. They were dispersed by Governor Grand Pre outside Fort San Carlos and chased into Mississippi territory (Cox 1918:155-57).

Tension increased between the American settlers and the Spanish government throughout the rest of the decade. The tension culminated on September 23, 1810, when a group of 75 rebels gathered outside Baton Rouge to attack Fort San Carlos. The year before, Cuming described the fort as:

> *a regular square with four small bastions at the angles. The ramparts are composed of earth thrown up out of a small dry ditch or fosse which surrounds it, and are crowned by a stockade of pickets. A few small guns mounted, point to the different approaches and also command the river, but it is a work of very little strength, and not capable of much defense against a prepared enemy (Thwaites 1904-07:IV, 341).*

With only 28 defenders, this dubious bulwark of Spanish colonial strength easily fell to the rebels who attacked at two in the morning. The attack came from the river side of the fort, where there was a gap in the wall for milk cows to come and go. The rebels quietly climbed the bluff below the fort and were able to enter before a warning could be sounded. Only a brief skirmish ensued and the small Spanish force quickly surrendered (Cox 1918:398-99; Meyers 1976:94).

With the Spanish force defeated, the leading citizens of West Florida met in Baton Rouge and declared the province's independence. Although they desired annexation with the United States, this did not immediately follow. A constitution was adopted and put into effect on November 10, 1810. A government was elected, with Fulwar Skipwith as the president of the independent republic of West Florida (Meyers 1976:101-08).

Two weeks before the election, President James Madison ordered the governor of the territory of Orleans, William C. C. Claiborne to take possession of West Florida. It was not until December 7, 1810, that Claiborne was able to reach Baton Rouge where the West Florida flag was lowered and the American flag raised. In keeping with his instructions, Claiborne divided the jurisdiction into four parishes: Feliciana, East Baton Rouge, St. Helena, and St. Tammany. Claiborne appointed George Mather as judge of East Baton Rouge Parish. A bill making Louisiana a state was enacted on April 12, 1812, without any mention of the Florida Parishes. Two days later a bill was passed

incorporating the area from the Mississippi River to the Pearl River into the state of Louisiana (Meyers 1976:111-116; Cox 1918:505-06).

Baton Rouge in the Antebellum Era

The United States government stationed troops at Baton Rouge in December 1810 with General Wade Hampton in command. The troops were quartered in the old Spanish Barracks and in new frame constructions that were built for the Americans on the north side of those barracks. A decision was made after the end of the War of 1812 to make Baton Rouge the site of the major ordinance depot and troop center in the southwestern United States. James Gadsen drew plans for the fort, eventually called Pentagon barracks, because of the shape of the five main buildings. By 1828, the Pentagon Barracks were completed. Most of the regular troops were withdrawn from the Barracks during the Seminole War in Florida in the 1830s and during the Mexican War the following decade. The barracks were later used as a hospital for returning soldiers from Mexico (Casey 1983:14-15).

During the decades between statehood and the Civil War, the town of Baton Rouge grew significantly. By 1850, it had a population of 3905 and it reached 5429 in 1860. The main reason for this later growth was the state legislature's decision to make Baton Rouge the state capital. A New York architect, James Dakin, was hired to design a new statehouse, and he chose to build it in a "Neo-gothic" style, resembling a castle. The dedication ceremonies were scheduled for December 1, 1849, but eight days prior to this, a fire wiped out one fifth of the town and the dedication was canceled (Carleton 1981:35-43).

During the antebellum era, the production of sugar cane and cotton by large plantations along the Mississippi River grew rapidly. Archeological and historic sites in the area indicative of this society and economic activity are Cinclare Plantation (16WBR6), Australia Sugar Mill (16WBR8), St. Mary's Plantation (16WBR9), Longwood Plantation (16EBR41), and Cottage Plantation (16EBR57).

The Civil War

In January 1861, Governor Thomas Moore used the state militia to seize the Pentagon Barracks and Arsenal which were held by a small garrison of the 1st U.S. Artillery under Captain Joseph Haskins (Casey 1983:15). By the summer of 1862, both New Orleans and Baton Rouge were back in the hands of the Union troops. Most of the Federal attention was then focused on seizing Vicksburg, Mississippi which the Union fleets under David Farragut and Charles H. Davis were attempting to capture.

Hoping to divert the Federal's attention away from Vicksburg, Major General Earl Van Dorn, who recently assumed charge of the Department of Southern Mississippi and Eastern Louisiana, developed plans for an attack on Baton Rouge. Recapturing the Louisiana state capital would mean Confederate control of the 268 river miles between Vicksburg and Baton Rouge. This control would insure storage facilities, communications, and the movement of men and supplies from the Confederate west through the mouth of the Red River to other parts of the South (Bearss 1962:77, 82).

The Confederate efforts to retake Baton Rouge culminated in the battle of Baton Rouge which began with skirmishes on August 4, 1862. Confederate forces were commanded by Kentuckian John C. Breckenridge and Union troops were led by General Thomas Williams. The Confederate attack depended upon the presence of the iron clad vessel, *Arkansas*, which was to clear the river of Federal wooden gunboats. The coordination of the land attacks with river support fell apart when the *Arkansas* ran aground upstream from Baton Rouge. John C. Breckenridge's forces were repulsed after a series of disjointed attacks on the Union lines just east of Baton Rouge on August 5, 1862. Confederate casualties were 95 killed, 302 wounded and 56 missing. Union losses were 84 killed, 266 wounded, and 33 missing. Casualties of note were Confederate Lieutenant Alexander H. Todd and Brigadier General Ben Hardin, brothers-in-law to Union president Abraham Lincoln, and Colonel Henry Allen, plantation owner and politician for whom Port Allen, Louisiana was named (Bearss 1962:112).

With the battle of Baton Rouge won, the Federals decided to evacuate the town and burn it to prevent it from giving shelter to the Confederates. Moses Bates, the superintendent of the State Penitentiary, however, notified the Union command of the many charitable institutions located in the city and the order to burn the city was countermanded (Bearss 1962:126).

Later, a small force of Union troops occupied the Pentagon Barracks, enclosed it and the arsenal in dirt embankments, and named it Fort Williams. After the Civil War, the post was still occupied by Federal troops enforcing the Reconstruction policies of the Federal government. It was deactivated in 1879 and in 1886 the Pentagon Barracks was turned over to Louisiana State University as the site of the university's campus (Casey 1983:15-16).

The Postwar Era

During the Civil War and Reconstruction, the pro-Union government of Louisiana met in New Orleans, while the Confederate government met first in Opelousas and then in Shreveport. It was not until 1879 that the capital was returned to Baton Rouge. Economically, plantation agriculture, which had been the main pre-war activity, suffered by emancipation and the disruption caused by the war.

The economic doldrums that resulted from the Civil War continued in south Louisiana until the 1920s when the oil and timber industries grew. The petrochemical industry has had the most lasting impact on Baton Rouge and surrounding areas.

A fortunate series of events culminated in the construction of an oil refinery at Baton Rouge. The impetus came from the Mid-Continent oil field. The Prairie Oil and Gas Company, an affiliate of the Standard Oil Company (New Jersey) found itself in possession of 43,000,000 barrels of crude oil, the value of which was declining as the area's production increased. Prairie was operating at a disadvantage because its pipeline outlet led to Standard Oil refineries in the North and East, while Prairie's local competitors had much shorter pipelines leading to refineries on the Gulf Coast. From these facilities their competitors availed themselves of cheap water transportation to ship their products to eastern markets (Hidy and Hidy 1955).

Wishing to imitate this advantage, Standard Oil officials hoped to locate a refinery on the Gulf Coast. The Gulf Coast ports closest to the Mid-Continent oil fields were in Texas, but another Standard Oil affiliate was embroiled in bitter anti-trust litigation in the Texas courts. Recoiling from this hostile environment, Standard Oil officials turned their attention toward Louisiana (Loos 1959; Hidy and Hidy 1955).

After careful consideration of several potential sites, Standard purchased 213 acres on the east bank of the Mississippi River just north of Baton Rouge. The tract occupied the first piece of high ground adjacent to the river and above its mouth. Safe from flooding, it was also accessible to the ocean going tankers that would ship refined products to markets along the East Coast. The site also offered an unlimited supply of water, a plentiful labor supply, and more than adequate rail and water transportation (Hidy and Hidy 1955:420).

Having selected Baton Rouge as the site of its Gulf Coast refinery, Jersey Standard officials initiated the project by chartering the Standard Oil Company of Louisiana. Capitalized at $5,000,000 representing 50,000 $100 shares of stock, Standard Oil (New Jersey) owned 49,000 shares (Loos 1959:4). Chartered in April 1909, Standard Oil of Louisiana commenced a two-fold construction project. The first part involved the building of the refinery, and by February 1910, full-scale operations processing crude oil shipped by rail from Oklahoma was achieved. The second aspect of the project called for the construction of a pipeline from the Oklahoma fields to the Baton Rouge refinery. While this work was in progress oil was discovered adjacent to the pipeline's route through Caddo Parish, Louisiana. The first oil from Caddo Parish carried through the pipeline reached the Baton Rouge refinery on May 31, 1910 (Loos 1959:6-7). These developments, irreversibly changed the economic and social character of Baton Rouge and the Mississippi River corridor to the Gulf.

Standard Oil officials made what was to them an excellent decision. Originally located to take advantage of oil being produced in Oklahoma, northwest Louisiana, and

Mexico, the Baton Rouge facility by 1924 had become the biggest refinery in the Standard system (Hidy and Hidy 1955:560). The Baton Rouge refinery had not only increased its capacity, but also broadened its scope by the addition of plants to process paraffin, lubricating oils, and asphalt (Hidy and Hidy 1955:129-30).

The Baton Rouge refinery assumed a position of prominence in the long range plans of Jersey Standard's executives. In October 1927, the company formally organized a research arm known as the Standard Oil Development Company. The eastern main office established this facility in Baton Rouge and staffed its operation with 15 chemical engineers from the Massachusetts Institute of Technology. While their initial research focused on a commercially feasible technology for the production of synthetic gasoline, their primary interests evolved in the direction of synthetic rubber, anti-knock compounds, and the elimination of waste in the refining process (Wall 1988:171-73). Their research, much of it based on scientific data by Jersey Standard from the I.G. Farben Company in Germany, established Baton Rouge as a center for the nascent petrochemical industry (Wall 1988:172-74).

This growth in stature of Baton Rouge as an industrial center became evident in World War II. Standard's Baton Rouge refinery emerged during the war as a leader in the production of 100 octane aviation fuel. One of only three refineries in the world able to produce over one billion gallons of the fuel (Popple 1952:47-48). A government constructed and owned plant operated by Standard Oil of Louisiana in Baton Rouge achieved a similar level of distinction in the production of synthetic rubber. After the war, these facilities formed the core of a petrochemical complex that had few peers in the world until the late 1970s.

In the first half of the twentieth century, as economic changes were occurring in the Baton Rouge area, political events also contributed heavily to the character of the city. The presence of the state government in the city of course provided jobs and enhanced the importance of the city. This importance became even more pronounced with the rise to power of Governor Huey P. Long.

Long's career as a politician began in 1918 when he ran successfully for the Louisiana Railroad Commission (Williams 1969:118). By 1924, he had a reputation as a populist and ran for governor. Although defeated then, he was elected in 1928 and began one of the most controversial terms of any governor in United States history. His legacy continues throughout Louisiana and is particularly noticeable in Baton Rouge.

Many of his construction projects had a definite influence on Baton Rouge. Foremost among these was the construction of a new state capitol building begun under his administration on November 16, 1930, and completed some 18 months later and dedicated on May 16, 1932. Designed by the New Orleans architectural firm of Weiss, Dreyfous, and Seiferth, this structure was meant to be the tallest state capitol building in the United States. While that achievement is dubious, the building does remain one

of the most impressive examples of Art Deco municipal architecture in the country (Carleton 1981).

Long also succeeded in increasing the number of state employees, to buttress his patronage and political power. The number of state employees grew dramatically, with a definite increase in Baton Rouge, and all owed Huey Long their jobs. Additionally, Huey Long adopted Louisiana State University as his pet project and spent a considerable amount of the state's money to build up the school's physical plant, to draw faculty from around the country, and to support the football team (Williams 1969).

As of the last census (1980) East Baton Rouge Parish had a population of 366,191. This represents a 400 percent increase in population from 1940 (pop. 88,415). The city of Baton Rouge, by actual population growth and a program of annexation of suburbs, grew at an even greater rate in the same period from a population of 34,719 in 1940 to 219,419 in 1980 (Calhoun 1988). The relative diversification of the economy in the Baton Rouge area, with growth in the oil industry, state government, Louisiana State University, and the transportation industries, has no doubt accounted for much of this increase.

CHAPTER VIII

HISTORY OF PROPERTY OWNERSHIP AND LAND USE IN THE PROJECT AREA

Undoubtedly part of Darguette's concession during the French colonial period, the region containing the project area did not see any real development until the British took over in the 1760s. In late 1763, Governor Johnstone was authorized to make grants of land to English settlers. One such grant of 500 ac was given to Daniel Hicky (sometimes spelled Hickey), whose family would eventually control the Hope Estate well into the nineteenth century. Hicky, like other grantees, was expected to cultivate at least three acres for every 50 considered plantable and to keep three "Neat cattle" upon every 50 ac considered barren. If the land was swampy, he had to drain three acres. Within three years, the concessionaire was expected to build "one good dwelling house to contain at least Twenty [sic] feet in length and sixteen feet in Breadth [sic]" (Dart 1929:632-33).

As previously noted, the project area became part of the British colonial empire in 1763 at the conclusion of the Seven Years War. The surveyor for the portion of this empire that came to be called West Florida was Elias Durnford. Durnford produced a number of maps. One of these, *Plan of the River Mississippi from the River Yasous [sic] to the River Iberville in West Florida (1771)*, shows the land between the future city of Baton Rouge and the Iberville River. This area, sometimes known as the Reach, had been divided into several different British land grants. Figure 27 is a detail from Durnford's map with the owners or grantees of the various parcels noted. For the majority of these holdings, however, it is not known which of these grantees actually occupied their lands or were owners in name only.

Gauld's 1778 map (See Figure 26) shows actual settlements on the Mississippi River and the names Carpenter and Pollock are the only ones within the current project area. The Carpenter referred to on Gauld's map is undoubtedly Richard Carpenter who owned parcel 240 according to Durnford's map. Carpenter's name does not appear, however, as an owner in any other records concerning the properties within the project area. Also, research has produced no information on the nature of the Carpenter or Pollock holdings during the late eighteenth century.

During the British colonial period, many of these Anglo planters probably engaged in the same sort of agriculture as did William Dunbar who set up a 500 ac plantation just north of Baton Rouge in 1773. Although a unique individual, Dunbar would have been faced with the same conditions as other Anglo planters in the area. Accounts of Dunbar's activities in the area can be regarded as representative of plantation development in the late eighteenth century. For example, on May 1776, Dunbar recorded in his diary that he had 14 slaves, 10 who worked in the fields and 3 who

worked in the house. He also seems to have been engaged in the slave trade, for he had 23 "New Negroes for sale who are employed about the business of the Plantation as the occasion requires." Dunbar states that "the Dry lands Cleared have been planted with Corn, Rice, & a little Indigo together with peas &c [sic]. We have also begun the making of Staves, of which there are already made 13 hundred of white oak Puncheon Staves--A Hired Man is employed in building Negro houses" (Rowland 1930:23). The impression is of a relatively small number of slaves being employed to clear plantations from raw wilderness and plant crops that may or may not have proved profitable.

After the Spanish took over the area in 1779-80, corn and cotton became more important crops, although indigo was still grown. Sugar cane, however, surpassed all products in economic importance. With the introduction of sugar, many plantations on the Mississippi below Baton Rouge were consolidated. Two men who were especially active at this time were Daniel Hicky, the founder of Hope Estate, and George Mather, the owner of Laurel Plantation. Land consolidation, plantation development, and increasing Anglo-American settlement in a region surrounded by the newly acquired Louisiana Purchase created tensions that eventually led to the shortlived Republic of West Florida. This republic was eventually annexed by the United States and Louisiana entered the Union in 1813. The plantation economy in the area flourished in the decades before the Civil War and the area just south of Baton Rouge that included the project area saw the development of five antebellum plantations. These plantations varied in size, production, and extent of physical development. They are described below going from upstream to downstream within the project area.

Figure 28 is Norman's Chart of property ownership on the banks of the Mississippi River. This map gives a general indication of the river front boundaries of the Gartness, Arlington, Hope Estate, Laurel Place, and Cottage Plantations. These antebellum properties represented occupations that were likely to produce significant cultural deposits. A later map of the Mississippi River from 1874 (Figure 29), notes the same plantations with the additional properties of F.H. Conrad and Walsh. A later land transaction, after the Civil War, produced what is known as the Nestle Down Plantation. The particulars of these plantations: their history and development in relations to what is now the project area are presented below, moving downstream from the uppermost plantation.

Gartness Plantation

According to the December 18, 1973, State Times, Spanish Governor Miro granted James Hillin part of the property that became Gartness Plantation in 1786. Fergus Deplantier, tried to take over the property sometime before 1813, but never gained title. Part of Gartness Plantation had several owners, including George Garig, Samuel Steer, John P. Trahan, Charles G. McHatton and William P. Saunders (Singletary 1931:230; State Times, December 18, 1973).

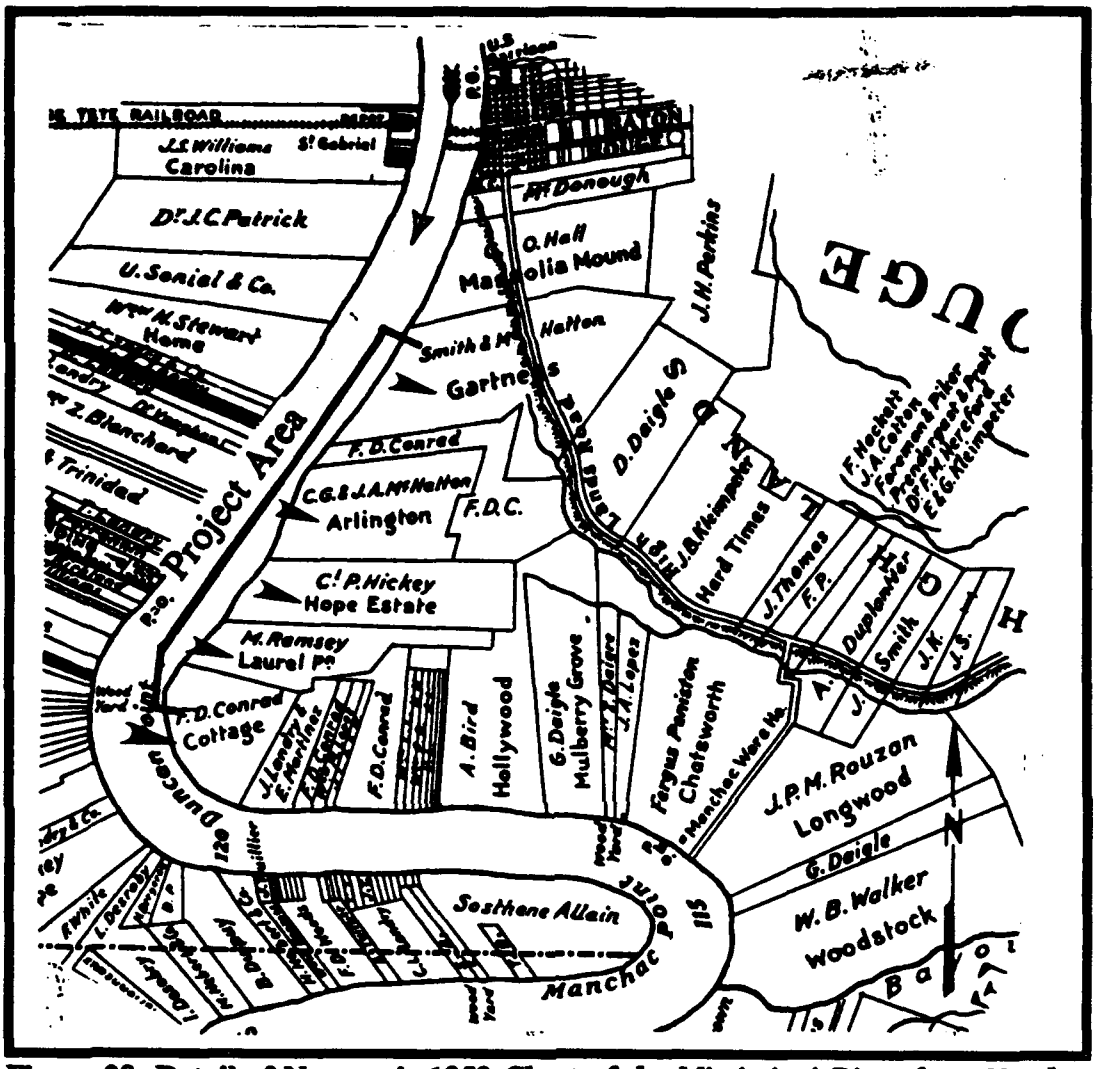


Figure 28: Detail of Norman's 1858 *Chart of the Mississippi River from Natches to New Orleans* showing landowners and locations of antebellum plantations in vicinity of project area

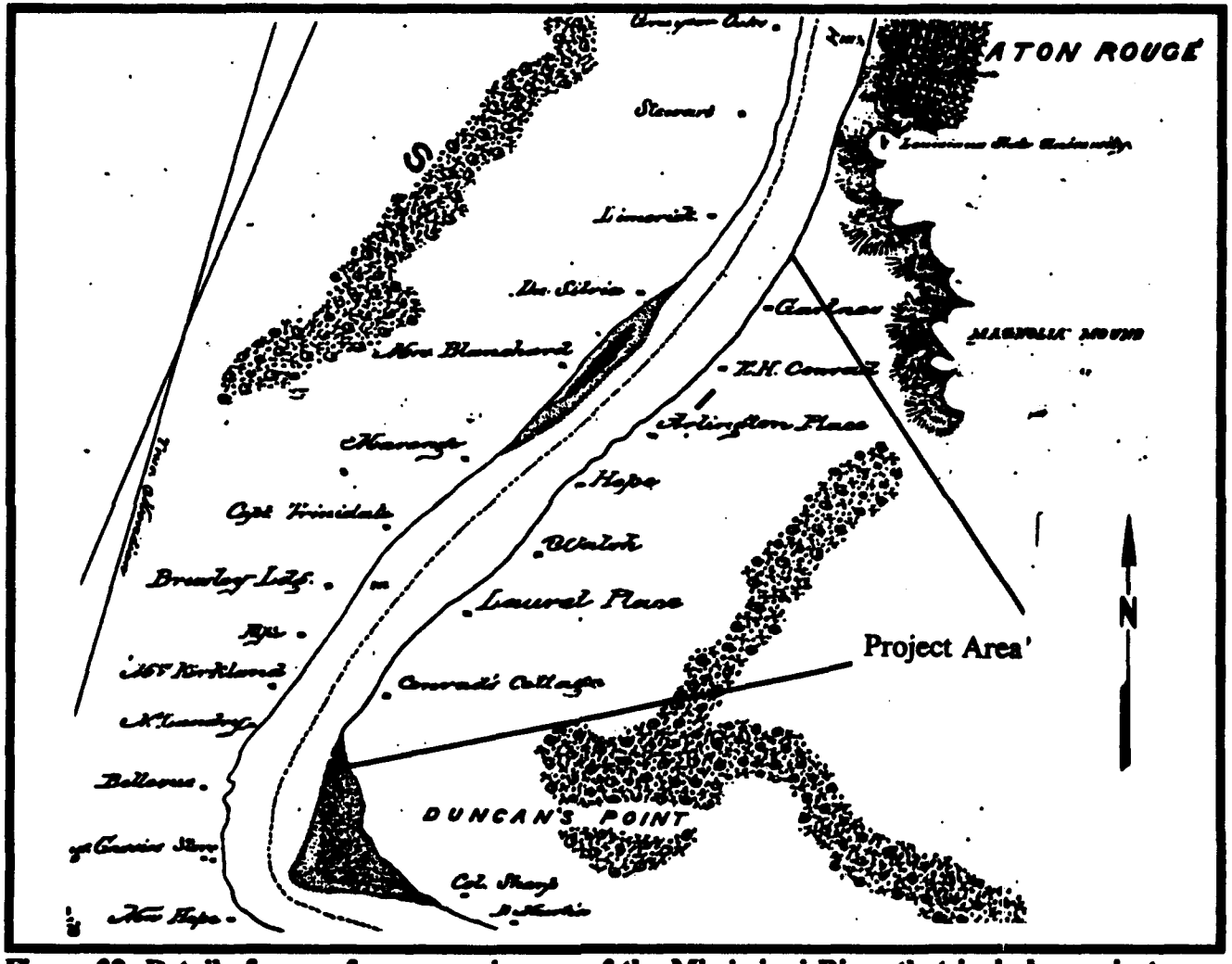


Figure 29: Detail of map of a reconnaissance of the Mississippi River that includes project area by Suter 1874. Source: U.S. Army Corps of Engineers, New Orleans District

By 1854, Gartness Plantation was owned and managed by Dr. James Minor Williams, a physician originally from Kentucky. The U.S. Marshall was listed as owning the property in 1865, probably a temporary ownership. According to the 1879 Mississippi River Commission map, Gartness Plantation was once again owned by the Williams family; but by 1900, part of Gartness Planation was owned by L. Barrillier. In 1912, Mrs. I.S. Williams sold part of the property to Charles F. Williams, who sold the property in 1918 to several Baton Rouge businessmen to hold for Louisiana State University (Singletary 1931:230; State Times, December 18, 1973).

Historic documents show that most of the structures associated with the Gartness or McHatton plantation were set back from the Mississippi River. Figure 30 shows the location of the Gartness plantation buildings in 1879 and their distance from the Mississippi River. The 1879 map shows a road connecting the plantation with the River Road. The former location of Gartness Plantation has been reported to the Louisiana Division of Archaeology as 16EBR39, now on a portion of the Baton Rouge Campus of Louisiana State University east of and well outside the project area.

By 1918, the administration of Louisiana State University, then located at the Pentagon Barracks in Baton Rouge, realized that room for expansion was desperately needed. President Thomas Duckett Boyd sought to expand the size of campus and to acquire acreage for agricultural experimentation. The Gartness Plantation extended some distance along the Mississippi River and included both floodplain protected by levee and a high plateau. President Boyd of Louisiana State University secured a $500 option on the Gartness Planation, on sale for $82,000. He organized a barbecue for the state legislature at the site of what is now the LSU Indian Mounds (16EBR6), to convince them of the efficacy of his plan to acquire the land for an ever-expanding university. Boyd's tactic worked; the legislature voted to buy the property. In 1920, financial arrangements were made to begin construction of the campus.

On March 29, 1922, construction of a "Greater University" began with a ceremonial spadeful of dirt dug by Governor John M. Parker. The University hired architect Theodore S. Link from St. Louis to design the Italian-Renaissance-style buildings on campus. By 1925, classes were held at the new campus but the official dedication was not held until April 30, 1926 (State Times, March 13, 1960).

Currently, buildings and other facilities of the LSU School of Veterinary Medicine are the closest structures to the upstream segment of the Arlington Revetment. South of the Veterinary Medicine School to Brightside Lane (1.5 mi), the area for the berm construction is owned by LSU and is used as pasture and crop land.

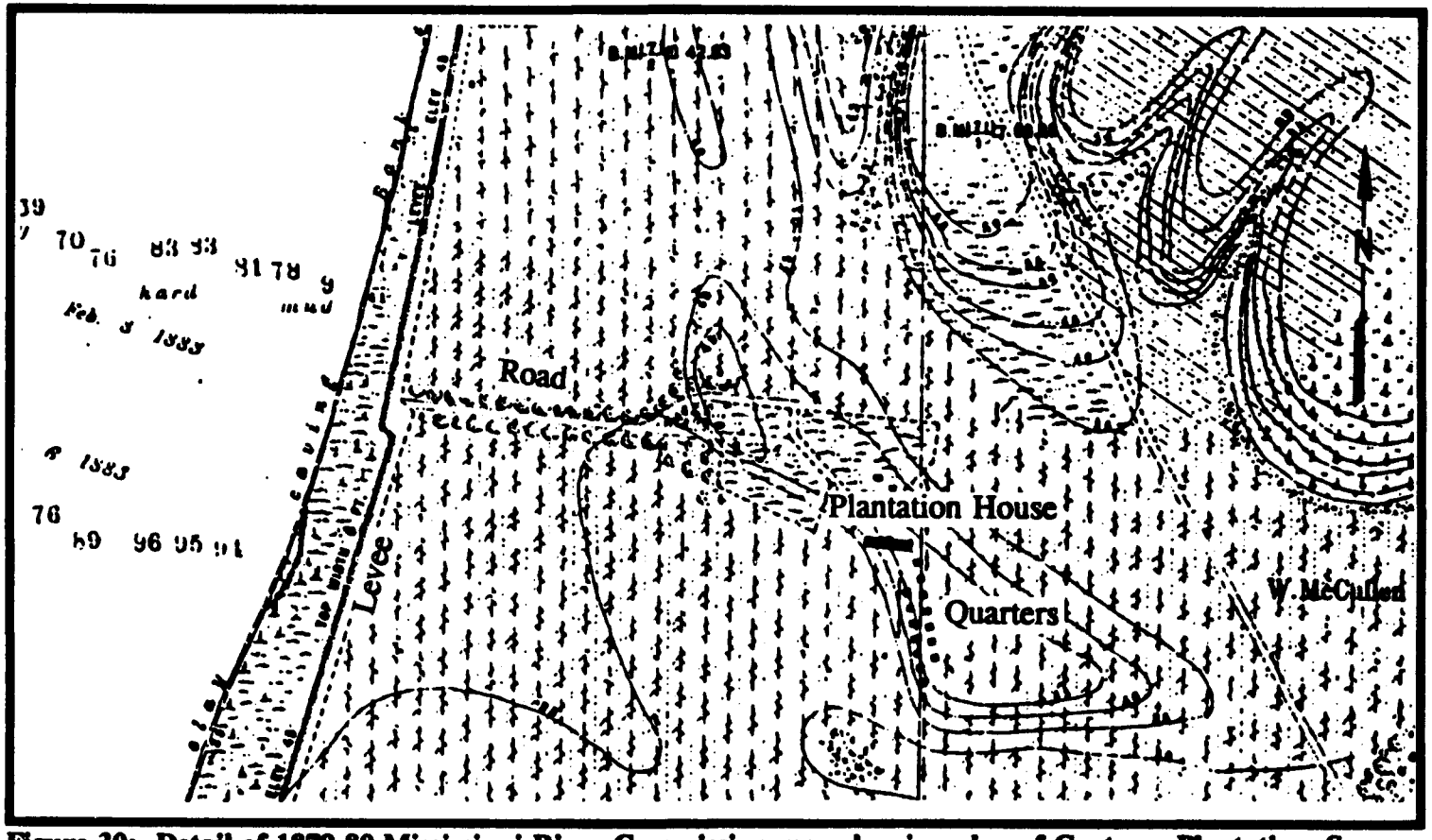


Figure 30: Detail of 1879-80 Mississippi River Commission map showing plan of Gartness Plantation. Source: U.S. Army Corps of Engineers, New Orleans District

Arlington Plantation

Just below Gartness, the Arlington Plantation contained about 23½ riverfront arpents. In 1829, it was owned by Constantius Pierce (Parish Judge Book N, Folio 346, East Baton Rouge Parish). Five years later, it was acquired by John C. Williams, who proceeded to sell Arlington to Robert Duer for the enormous sum of $154,070 (Sheriff's Sale Book B, Folio 123, East Baton Rouge Parish; Parish Judge Book C, Folio 27, East Baton Rouge Parish).

When Duer was unable to meet the payments, Williams reacquired Arlington in 1840 for $96,000. The plantation contained 62 slaves, of whom 2 were drivers, 2 were carpenters, 1 was a blacksmith, and 1 was a cooper. Also on the property were "20 head of horses, 12 yoke of oxen, 20 milch [sic] cows, 40 head of cattle, 200 sheep, 4 horse carts, 2 ox-carts, 1 ox-wagon, 40 plows, 60 hoes, 20 spades, 20 shovels, 20 axes, a cultivator, and a cutting box" (Sheriff's Sale Book C, Folio 140, East Baton Rouge Parish).

In 1852, C.G. and J.A. McHatton bought what became Arlington Plantation from Williams. James Alexander McHatton is listed as the sole landowner after 1857 (Chompomier 1844-1862). It was under his ownership that Arlington Plantation apparently reached its zenith of antebellum development. As the young bride of James Alexander McHatton, Eliza McHatton Ripley lived at Arlington Plantation just before the Civil War, and later wrote about it in her book *From Flag to Flag* (1889). She describes the plantation in glowing terms:

> *A spacious mansion...so closely following the architectural features of the historic Lee homestead on the Potomac as to give the name of "Arlington" to the plantation...The house faced a broad lawn, dotted here and there with live-oak and pecan trees...and commanded a magnificent view of the Mississippi...Those grand autumnal days, when smoke rolled from the tall chimney of the sugar-house, and the air was redolent with the aroma of building cane-juice... (Ripley 1889:8-9).*

While plantations along the Mississippi River readied for war, a flood threatened many properties including Arlington in the spring of 1862. Ripley reported that a major crevasse in the levee opened at Arlington Plantation, flooding fields, but causing less concern than the war and impending invasion of Federal forces. Flood damaged roads delayed any approach from Federal troops, but after taking Baton Rouge they eventually reached Arlington. It seems Arlington survived the Federal occupation better than some plantations that were completely sacked and vandalized. Ripley and her disabled husband ultimately decided to flee Baton Rouge. On December 12, 1862, as she left the plantation, a slave warned of a Federal gunboat anchored between Hope Estate and Arlington Plantation within view of the main house at Arlington. Ripley and her husband fled first to Texas, and then on to Cuba where they began another sugar cane plantation (Ripley 1889:10-59).

The Civil War drastically affected land prices in Louisiana. Arlington, bought before the war for $105,000 was acquired by a Mr. Pike from his co-owners for $10,720 in 1866 (Conveyance Book V, Folio 8, East Baton Rouge Parish). Sugar was not raised on Arlington Plantation until it was acquired in 1877 by Napoleon Bryant and James Parker from Boston, and Dennis A. Shannon of Baton Rouge (Bouchereau 1869-1877; Conveyance Book 4, Folio 58, East Baton Rouge Parish). The names of Bryant and Shannon appear as the landowners on the 1879 Mississippi River Commission map. A group of structures are shown on this map that seem to indicate that the same plantation home and attendant structures described by Mrs. Ripley still existed (Figure 31). Figure 32 is a copy of sketch map of the Arlington Plantation done by a land surveyor in the late 1870s which show that Mr. Shannon was at least a resident at the plantation.

In 1886 Bouchereau reported that Arlington was raising rice, but the following year Arlington grew both rice and cotton. This was the pattern until 1892 when Bouchereau stopped reporting rice production (Bouchereau 1886-1892). In 1888, Michael J. Mulvihill bought Arlington Plantation for $8,900. Included were "30 mules, 1 horse and mare and colt, 12 mule plows, 3 one-horse plows, jingle bells, 8 harrows, cultivators, 2 one-horse carts, 6 three-mule carts, 2 four-mule wagons, 1 cotton seed distributor, 1 four-horse plow, and blacksmith tools and a blacksmith shop" (Conveyance Book 10, Folio 192, East Baton Rouge Parish). One reason for this drastic reduction in value is that the action of the Mississippi River on the plantation had caused the destruction of the antebellum structures. Figure 33 shows the extent of the bank erosion in this portion of project area and the location of structures in relation to bank lines of the Mississippi River in 1921 and 1985.

Portions of Louisiana State University holdings to the south of the School of Veterinary Medicine include holdings that were once part of Arlington Plantation. Other portions of Arlington Plantation had a series of owners in the early twentieth century whose primary goal seemed to be land speculation and/or real estate development. Names associated with this activity were Morris Rosenfield and Nathen Abramson. Apparently, nothing substantial came from these activities during the first 20 years of this century.

Hope Estate Plantation

In late 1763, Britain authorized Governor Johnstone to make grants of land to English settlers. One such grant of 500 ac was given to Daniel Hicky. Daniel and his descendants would eventually control the Hope Estate Plantation well into the nineteenth century. Hicky was bone in Ennis, County Claire, Ireland in 1740. His wife, Marsha Schrivner, was from Worcestershire, England. The Hickys moved to British West Florida in 1775. Their son, Philip, was born in Manchac on the Mississippi River in 1778 and died at Hope Estate in 1859. Philip married Ann Mather, the sister of nearby plantation owner George Mather, Sr. (Philip Hicky and Family Papers, LSU; Padgett

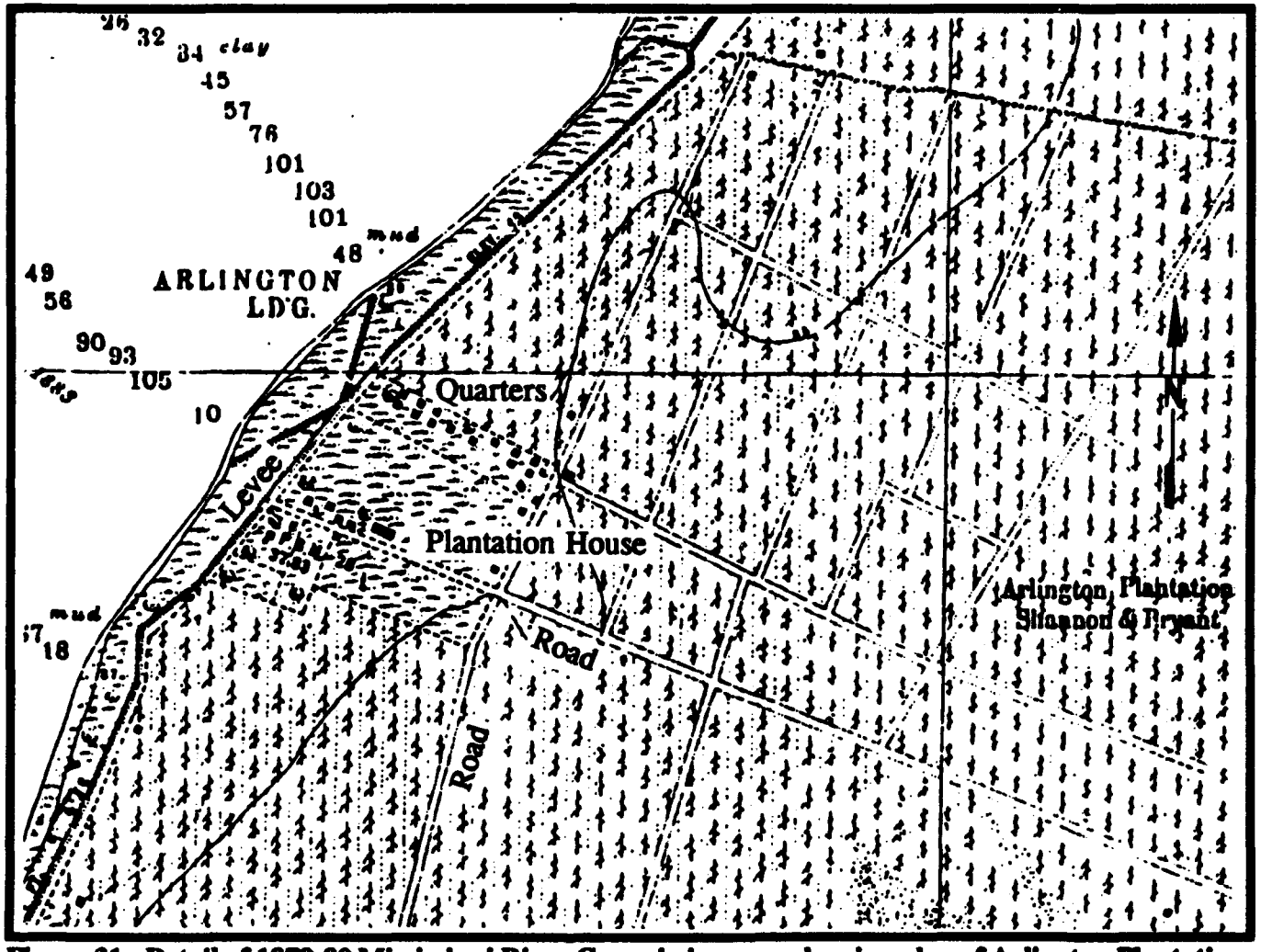


Figure 31: Detail of 1879-80 Mississippi River Commission map showing plan of Arlington Plantation. Source: U.S. Army Corps of Engineers, New Orleans District

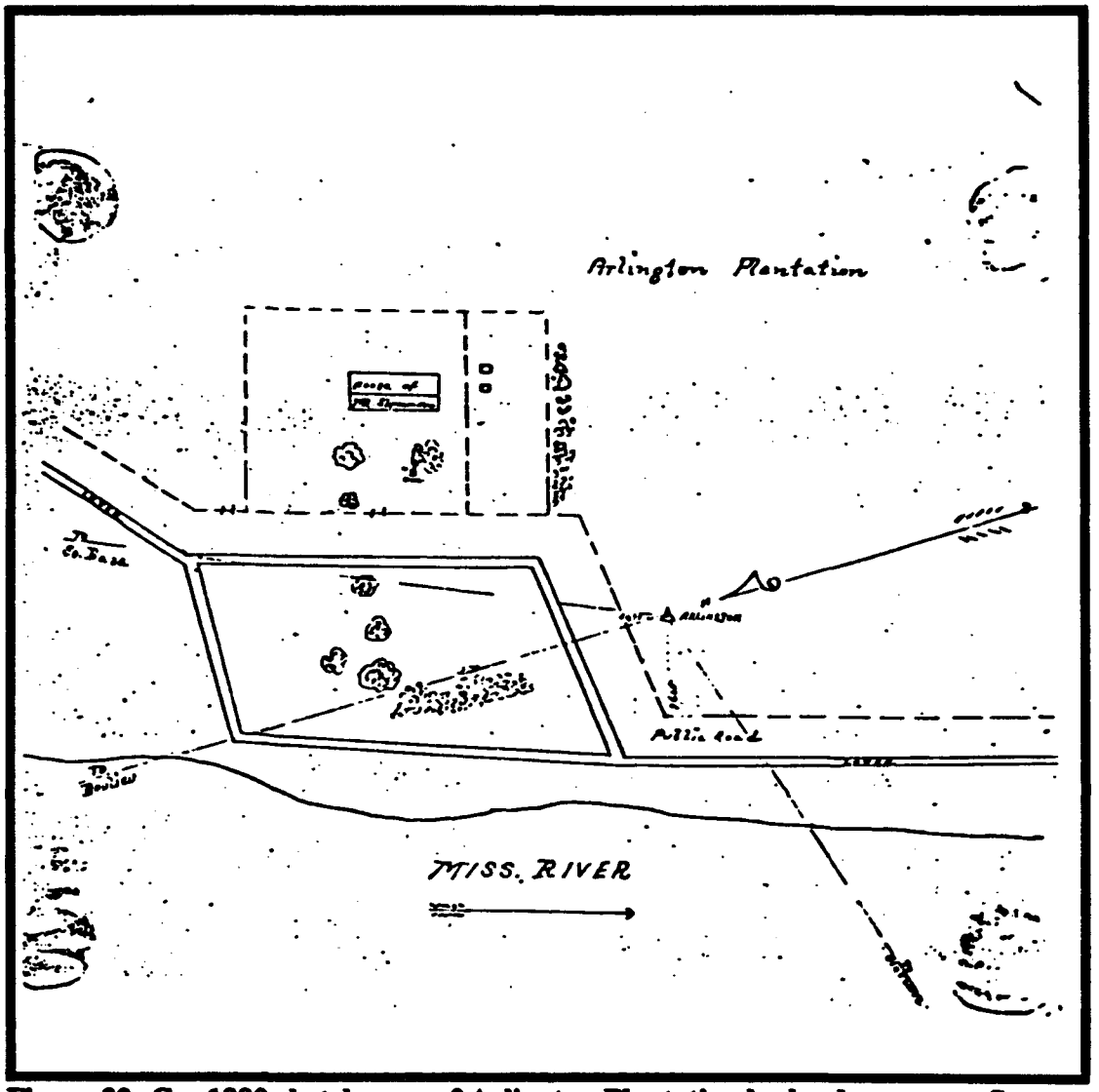


Figure 32: Ca. 1880 sketch map of Arlington Plantation by land surveyor. Source: Anonymous n.d.

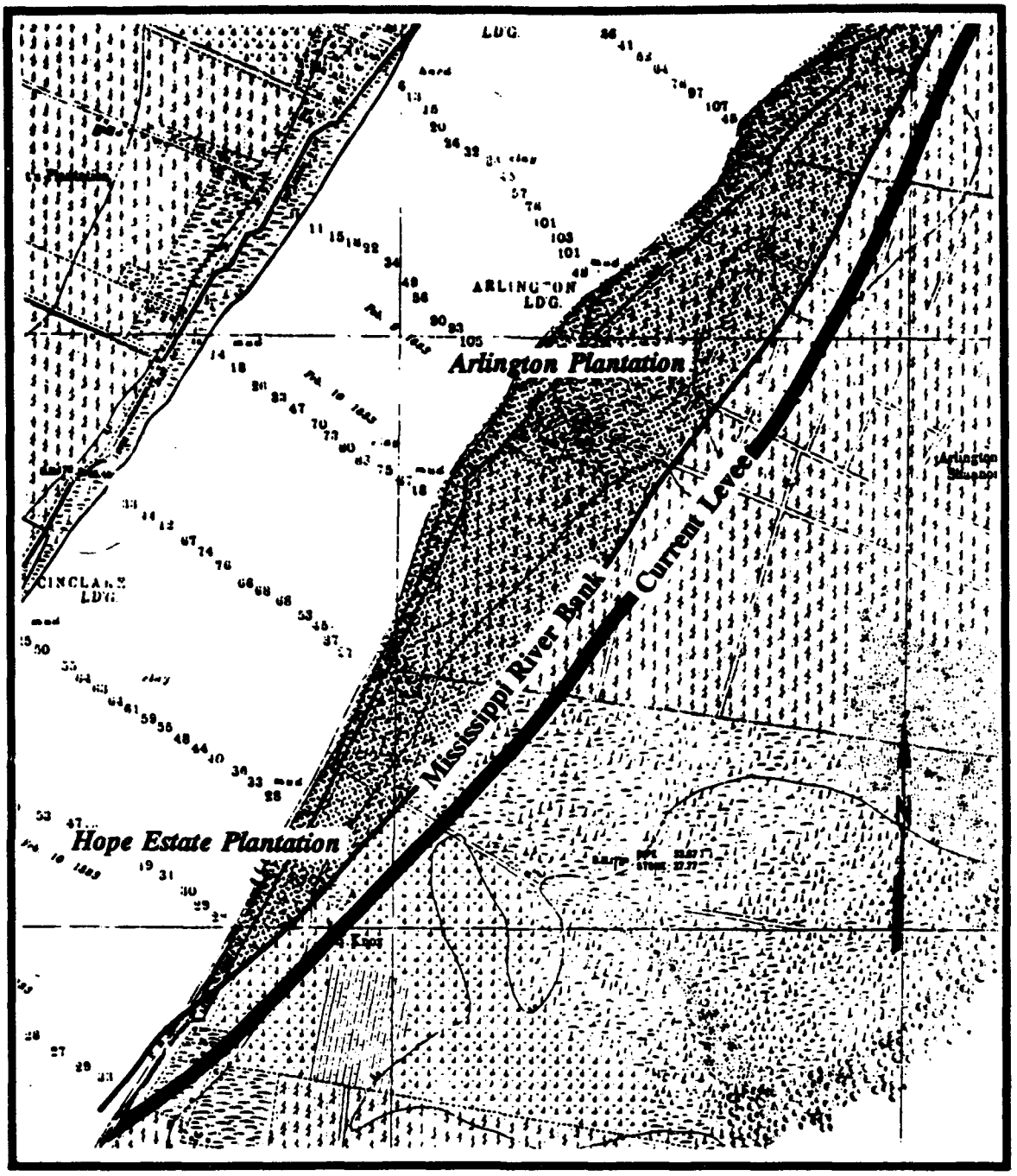


Figure 33: Detail of 1879-80 Mississippi River Commission Map showing extent of bank erosion on the Mississippi River between 1879-80 and 1985 in portion of project area. Source: U.S. Army Corps of Engineers, New Orleans District

1938:687). In 1776, Daniel Hicky acquired property from William Marshall, whose holding as shown on the Durnford map (See Figure 27) appears to be located about where Hicky's Hope Estate was founded. The plantation home that was the centerpiece for the Hope Estate Plantation was built in the late eighteenth century. Throughout the Spanish colonial era, Hicky continued to acquire land in the Baton Rouge area (American State Papers, Public Lands 1834:III 36-38, 43, 57).

Daniel Hicky served as a confidant to several Spanish governors during the late eighteenth century. Spanish Governor Carols Dehault de Lassus appointed him to serve on a committee to determine the feasibility of opening Bayou Manchac up for commercial navigation. In January 1809, Hicky's committee presented the governor with a report that suggested such a project was feasible (Singletary 1931:212). In 1810, however, Daniel Hicky became a signer of the Declaration of Independence of the republic of West Florida and aided the West Florida Rebellion by serving as messenger to the Spanish Governor. Hicky then actively sought the annexation of Florida to the United States, and later served as a Louisiana state legislator. As a pioneer cultivator of sugar cane, he built the first sugar mill in East Baton Rouge Parish in 1814 (Debow's Review 11:612-614).

Debow's Review, published in New Orleans between 1846 and 1870, reported in 1852, that Colonel Philip Hicky had a cotton factory, indicating that Hicky was probably raising cotton at that time (Debow's Review 12:25). Sugar cane, however, surpassed all products in economic importance. With the introduction of sugar, the landholdings on the Mississippi River below Baton Rouge were consolidated.

The Hope Estate was painted by Adrien Persac in the late 1850s when he made a tour of the Mississippi River and nearby bayous painting landscape portraits of plantation homes. The view of the home was made from the levee across the River Road that ran in front of the plantation (Figure 34). Barbara SoRelle Bacot of the Louisiana Division of Historic Preservation, described the setting in the portrait:

> *This carefully detailed gouache shows the plantation house and grounds from the road along the levee. In the foreground are elaborate octagonal pigionniers with masonry bases, octagonal cupolas, and weathervanes. These define the grounds of the house and are connected by a wooden fence on a masonry base which leads to a central, extremely elaborate set of gates. The house itself was built in the Creole or French Colonial style. A circular wellhouse with a conical roof stands to the rear left of the house. There is direct access from the ground to a cottage just beyond the side fence, which probably the residence of the plantation overseer. Just in front of it is a square building with barred galleries, which is suggested as the slave jail. The sides of the grounds are defined by far less elaborate picket fences, and the grounds contain a number of sizeable ornamental trees, poplars, locusts, and golden rain trees, with a peacock*

Figure 34: "Hope Estate Plantation" Gouache on paper. Black and white copy of Persac's original, 1858. Source: LSU Anglo Art Museum, Baton Rouge, Louisiana

sitting on the limb of a locust. In the background, Persac shows a double row of slave quarters, a large gabled wagon shed, and various other buildings (Bacot 1990:15).

The painting and this description give the impression of a very wealthy and well-organized plantation that probably more closely resembled a nearly self contained feudal village than a modern agricultural farm. Although the Hope Estate Plantation survived the Civil War, the social system that built it did not. The Plantation still existed in 1869 (Figure 35) when East Baton Rouge Parish was modifying the Mississippi River levee. This levee construction did not stop the River's action, however, and it eventually washed away all the grand architecture shown by Persac's painting. Figure 33 shows the extent of river erosion since 1879 and how nothing of the plantation's buildings are left within the confines of the current project area.

A few Hicky family papers survive at Hill Memorial Library at Louisiana State University. Included in the collection is a 1810 letter to the inhabitants of the district of New Felicana, a list of property owned by Philip Hicky in East Baton Rouge Parish, a photograph of Philip Hicky, an obituary notice for Mrs. Ann Hicky, a family tree, a recipe for Hope Estate Punch, and several letters. The letters, from Philip Hicky to grandchildren in the east, date from 1858 and 1859 and relate such information as the drought and poor sugar crop in 1859. (Philip Hicky and Family Papers, LSU). Other references to the Hicky family show that Martha Francis Hicky married Simon W. Walsh at Hope Estate in the 1830s. The name Walsh remains associated with the Hickys and Hope Estate for much of the nineteenth century (Seebold 1971:164-167). This may account for the name Walsh shown on an 1874 map of the Mississippi River just down stream from Hope Estate (See Figure 29).

By 1900, Hope Estate was owned by N.K. Knox. Most of what was Hope Estate Plantation is now owned by the Greater Baton Rouge Port Commission. Attempts to find the sales transaction to this agency from private owners were unsuccessful. The area is fallow pasture land.

Laurel Plantation

On January 4, 1792, George Mather acquired 174 acres in the Baton Rouge district from Janet Daigle. Mather was an Englishman by birth, but had been a resident of Louisiana for several years before he established of Laurel Plantation on the Daigle property. At an unspecified later date, he added 256 ares from F.A. Daigle. He also acquired 110 acres from a man named Reoman (American State Papers, Public Lands 1834:III 37, 46, 50; Arthur 1935:141). By 1800, Mather owned 11 riverfront arpents of land below Hope Estate (Parish Judge Book J, Folio 414, East Baton Rouge Parish).

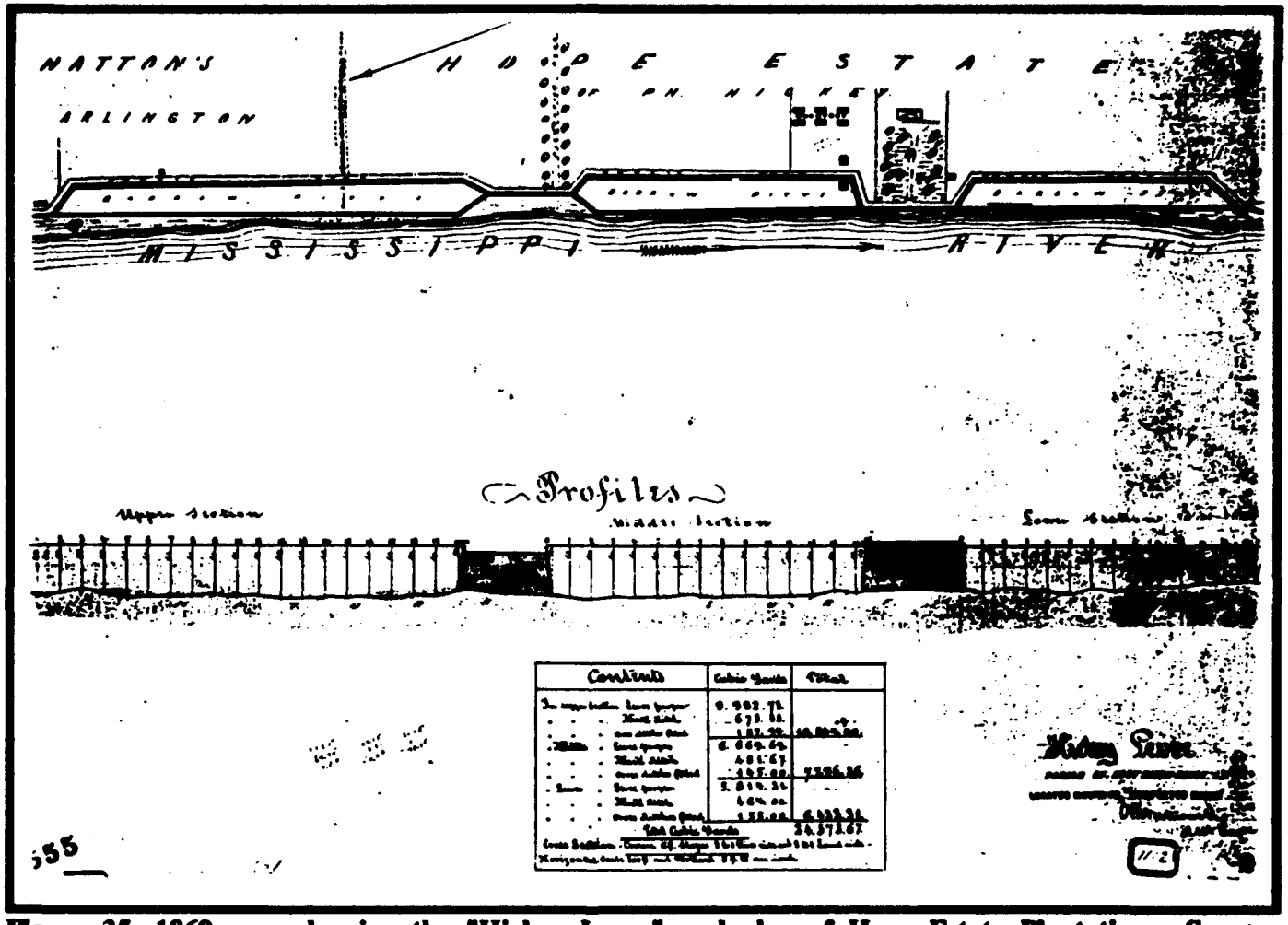


Figure 35: 1869 map showing the "Hickey Levee" and plan of Hope Estate Plantation. Source: Louisiana Department of Transportation and Development

George Mather, Sr. aided in the West Florida Revolution of 1810 by acting as the Secretary of the Revolutionary Convention and by serving as a messenger. Shortly thereafter, Governor William Claiborne appointed Mather to a judicial se. , which he held for one year. (Padgett 1938:696; Arthur 1935:33, 39, 141, 149). He died in late 1820, leaving as his heirs, George, Jr., and his two daughters. One of these daughters married Philip Hicky of Hope Estate and the other married Abner Duncan the original founder of the Cottage Plantation (Parish Judge Book H, Folio 832, East Baton Rouge Parish). Laurel Plantation was controlled by all three children until 1829, when Philip Hicky sold his brother-in-law 7 adjoining arpents which his father had acquired in 1800 from Miquel Morales (Parish Judge Book N, Folio 414, East Baton Rouge Parish). George Mather, Jr. died in 1839 and Laurel Plantation, now consisting of 16½ arpents, was acquired by Philip Hicky's son Daniel (Mortgage Book K, Folio 82, East Baton Rouge Parish). Two years later, in separate transactions, Laura Stewart Jones bought Laurel Plantation, with its 34 slaves, from Hicky and Caldwell for $43,050 (Conveyance Book D, Folios 148, 214, East Baton Rouge Parish).

Jones was only able to keep Laurel for two years. It was acquired for $27,334, in a sheriff's sale, by Matthew Ramsey on April 6, 1852. Twenty-nine slaves were included in the transaction (Sheriff's Sale Book H2, Folio 46, East Baton Rouge Parish). In 1867, Ramsey sold Laurel to Thomas Buffington for $5,000. Buffington grew sugar cane on the plantation (Mortgage Book T, Folio 517, East Baton Rouge Parish). The Payne family of West Virginia acquired Laurel Plantation, 12 mules, and farming utensils, in January 1878 for $20,000 (Conveyance Book 4, Folio 256, East Baton Rouge Parish). William Garig bought it from the Paynes eleven months later (Conveyance Book 4, Folio 440, East Baton Rouge Parish). Garig raised several crops at Laurel by the 1880s, but in 1886 and 1887 Bouchereau reported that Laurel was raising rice (Bouchereau 1886-1892).

Laurel Plantation was noted in the first Mississippi River Commission (MRC) done in 1879-80. A later map dating from 1908 was made for the Pontchartrain Levee District which showed the layout of the plantation (Figure 36). Later MRC maps of the Mississippi River showed that little bank erosion and levee set backs have occurred in the portion of the project area that contained the Laurel Plantation (See Figure 33).

Currently, the Laurel Plantation is principally owned by Phillips C. Witter of Baton Rouge, who inherited it from his mother, Elanor Connel Witter. Mrs. Witter appears to have purchased a number of properties in the Baton Rouge area in the 1930s and 1940s. Her son and apparent primary heir, P.C. Witter, currently has several extensive landholdings in the Baton Rouge area. The abandoned plantation, with some of the buildings still extant, is now known as the Laurel Plantation Hunting Club.

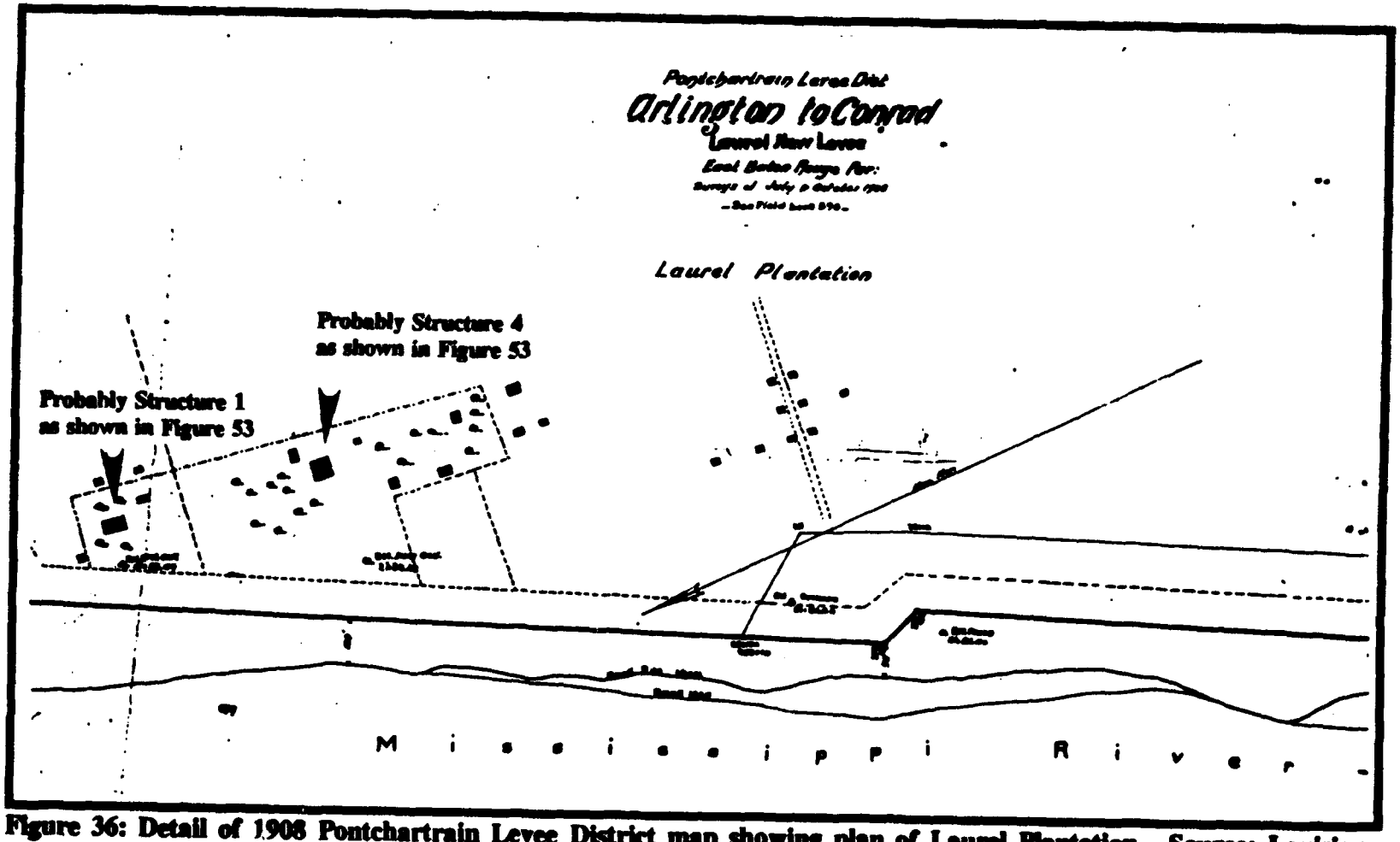


Figure 36: Detail of 1908 Pontchartrain Levee District map showing plan of Laurel Plantation. Source: Louisiana Department of Transportation and Development

Cottage Plantation

In 1791, Lewis Daigle claimed 110 ac that were eventually obtained by Jean Charles Tullier. By 1804, Tullier acquired an additional 81 ac just below this land (American State Papers, Public Lands 1834:III 52). Just below the Tullier land was Samuel Moore's holding of approximately 330 ac, which became the heart of the Cottage Plantation. In 1806, this was acquired by the Duplantier family (Parish Judge Book G, Folio 130, East Baton Rouge Parish; American State Papers, Public Lands 1834: III 57). Just downstream from this was the 165 ac tract owned by Jacques Larch (Parish Judge Book G, Folio 132, East Baton Rouge Parish).

Abner Lawson Duncan, a lawyer originally from Pennsylvania, established Cottage Plantation soon after the War of 1812. Prior to the establishment of Cottage Plantation, Duncan aided the West Florida Revolution of 1810 by acting as a legal advisor to James Wilkinson and by guaranteeing supplies (Padgett 1938:106). In 1818, he bought the 330 ac Duplantier tract for $7,000 (Parish Judge Book G, Folio 132, East Baton Rouge Parish). Two years later, Duncan purchased the lower 165 ac from Philip Hicky for $4,000 (Parish Judge Book H, Folio 793, East Baton Rouge Parish). Hicky had acquired the land in September of 1814 from Antoine Son, who had purchased it five months earlier from Jacques Larch (Parish Judge Book C, Folio 391, East Baton Rouge Parish; Notarial Book A, Folio 281, East Baton Rouge Parish).

Half of the Cottage Plantation was a gift of marriage made by Abner Lawson Duncan to his daughter Frances and her fiance Frederick D. Conrad (State Times, February 18, 1960). Abner Duncan gave the other half of Cottage Plantation to his son, A.L.H. Duncan. Abner Duncan designed and oversaw the building of the French Colonial style main house at Cottage Plantation in 1824-25 (Hays 1965). Also included in Mr. Duncan's gift was a village of brick plantation cabins for slave quarters, a large sugar house, and a cotton gin (Daily Reveille, March 19, 1982). The area around the house was originally known as Duncan's Point and had a small cottage located there as a family retreat. It was from this small house that the main house and the plantation derived its name. Frederick Conrad continued to add to the plantation after his marriage. Just above the Duncan tract, the 191 ac Tullier family tract was sold to James Mather for $4,050 in 1824 (Parish Judge Book M, Folio 46, East Baton Rouge Parish). Six years later, Mather sold it to Frederick D. Conrad for $3,000 (Parish Judge Book 2, Folio 375, East Baton Rouge Parish).

Mr. Conrad was responsible for developing sugar cane as a principal plantation crop. In fact, Cottage Plantation was regarded as one of the most successful sugar producers in the region. With the wealth and power derived from that production, the Conrads entertained in grand Southern style and the house became the center of many social events. The list of people who spent time at the Cottage Plantation included Jefferson Davis, Judah P. Benjamin, Henry Clay, the Marquis de Lafayette, and Zachary Taylor, before he became president.

Following Abner Duncan's death, his son, A.L.H. Duncan, sold his half of the Cottage Plantation to Conrad for $20,000. Also included in the sale was a "sugar house building, sugar mill, steam engine and boilers, corn mill, and all kettles and fixtures, outhouses...and everything on said plantation appertaining to the manufacture of sugar...also the dwelling house and outhouses. All horses, mules, cattle, sheep, wagons, carts, and harnesses, farming utensils, and articles of every description." By 1860, the Cottage Plantation would be one of the most prosperous plantations in the area (Notarial Book H, Folio 29, East Baton Rouge Parish).

Frederick Conrad of the Cottage Plantation played an important role in aiding the victims of the explosion and sinking of the steamboat *Princess* in 1858. James Morris Morgan, a young resident of Baton Rouge described the scene.

> *The Princess had just drawn out into the stream, and as I stood watching her as she glided down the river a great column of white smoke suddenly went up from her and she burst into flames. She was loaded with cotton. As though by magic the inhabitants of the town gathered at the riverside and in the crowd I spied my brother-in-law, Charles La Noue, in a buggy. He called to me; I jumped in alongside of him and we dashed down the river road in the direction of the burning boat.*
>
> *At last, in a great state of excitement, we arrived at the plantation of Mr. Conrad. "Brother Charlie" jumped out of the vehicle and ran toward the house while I made the horse fast to a tree. I then mounted the levee from where I could see floating cotton bales with people on them; men in skiffs, from both sides of the river, were rescuing the poor terror-stricken creatures and bringing them ashore. From the levee I rushed into the park in front of Mr. Conrad's residence and there saw a sight which can never be effaced from my memory. Mr. Conrad had sheets laid on the ground amidst the trees and barrels of flour were broken open and the contents poured over the sheets. As fast as the burned and scalded people were pulled out of the river they were seized by the slaves and, while screaming and shrieking with pain and fright, they were forcibly thrown down on the sheets and rolled in the flour. The clothes had been burned off of many of them. Some, in their agony, could not lie still, and, with the white sheets wrapped round them, looking like ghosts, they danced a weird hornpipe while filling the air with their screams (Morgan 1917:3-4).*

The Cottage Plantation enjoyed prosperity until the Civil War. Although he was too old to fight for the South, Mr. Conrad was an ardent supporter of the Southern cause. He donated a reported three million dollars and the service of his three sons to the war effort. As victories of the Yankee invasion increased, however, structures were needed to house officers and wounded solders. In fact, many of the great houses in Louisiana were spared destructions so that they might provide shelter for the casualties

of war. When Baton Rouge surrendered to the Union army in 1862, the Conrad family left the Cottage Plantation and waited out the war in St. Helena Parish. The Union army occupied the home and used it as a hospital for the treatment of wounded soldiers and those who were unfortunate enough to contract yellow fever. Union soldiers who died from their wounds or fever were buried on the grounds of the plantation in unmarked graves marked by a grove of cypress trees. The Federal troops generally pillaged and abused the Cottage plantation during their occupation (Seebold 1971:159).

Frederick Conrad died soon after the war and his brothers took over the plantations's management. Cotton continued as the most lucrative crop and the plantation apparently flourished for some years after the war (Sunday Morning Advocate 1978). Around the turn of the century, however, the plantation's crops were ruined by the boll weevil and the Cottage Plantation fell on hard times. The house was eventually abandoned and began to deteriorate. The surrounding lands were leased to provide the Conrad family with a nominal income. In the best Southern tradition, it was rumored that the house was haunted:

> *The Cottage, like most of the old plantation houses, has had a number of ghost stories associated with it, though in this case they seem to be particular definite. Many an evening, it is said, finds strange music issuing from the upper gallery -some slaves it seems, who once gave impromptu musicales for the guests of the Conrads on the same wide galleries, have returned singing and playing the songs of the fields (Laughlin 1961:33)*

It was not until the early 1940s that the house was given some sorely needed attention. The writer Frances Parkinson Keyes invested nearly $50,000 into the deteriorating home and used it as her residence. While living in the house, she wrote her novel *River Road* (1945) which depicted contemporary life in south Louisiana from the perspective of old gentry. Ms. Keyes was a prolific American writer of some import with over 50 works of biography, travel, and fiction published from 1921 to 1972. Examples of her titles in addition to *River Road* were: *Cresent Carnival, Dinner at Antoine's, Joy Street, I, the King,* and *All Flags Flying* (Bain et al. 1982).

When Ms. Keyes left the Cottage, the home was incorporated by Mrs. Claude F. Reynaud and her brother, James J. Bailey. Because of its grandeur, the house was used as a setting for several motion pictures including "Band of Angels" in 1957 which starred Clark Gable. In addition, it was furnished with antebellum articles and open to the public for tours.

On January 10, 1960, the grounds near the Cottage was the scene of a celebrated murder case in Baton Rouge. Dr. Margaret Rosamond McMillan, a professor of zoology at Louisiana State University, New Orleans, was found beaten to death in a driveway

near the plantation. Dr. McMillan's murder was never solved despite intense investigations and widespread publicity. (State Times, January 12, 1960).

On February 18, 1960, while the McMillan case was still under investigation, the Cottage Plantation burned to the ground after having apparently been struck by lightning. No water was available for arriving firemen to extinguish the flames and within several hours it was reduced to the ruin it is today. The recent murder was mentioned in most news articles reporting the fire and it was popular speculation that the two events were related. Authorities ruled otherwise, however, and found no connection.

At the time of the fire, the home was insured for only $50,000. Damages were estimated at $150,000 (Daily Reveille, February 19, 1960). Reconstruction costs were far too great for Mrs. Reynaud and Mr. Bailey, so the Cottage Plantation was abandoned. The Cottage Plantation is now owned by the Richfield Corporations, which is controlled by the Bailey family. The current heirs are various members of this family who all inherited it from Francis Conrad Bailey who, in turn, was descended from the Conrad family who had so much to do with the glory days of the Cottage Plantation.

The plantation arrangement of the Cottage is depicted in a surveyor's sketch (Figure 37) dating from the late 1870s (Anonymous). Currently, with the house in ruins, other nineteenth century structures that apparently once shared the property with the Cottage, no longer exist. The grounds of the Cottage Plantation within the project area are pasture land.

Nestle Down Plantation

Norman's Chart of 1858 (See Figure 28) and the 1874 Army Corps of Engineers Map (See Figure 29) showed a parcel of property located between Gartness and Arlington Plantations that was owned by Frederick Conrad, the owner of the Cottage Plantation. Sometime in the late nineteenth century this land was purchased by the S.A. Gourrier family and the parcel was incorporated into the Nestle Down plantation. An 1895 survey of East Baton Rouge Parish (Figure 38) verifies this ownership and the boundaries of the Nestle Down Plantation. As far as can be determined, no buildings associated with Nestle Down were ever located in the vicinity of the project area. In 1911, a Mr. Himes and Mr. Atkinson bought the Nestle Down property from Samuel Andre Gourrier (COB 53, folio 252). The property was subdivided and resold two or three more times until purchased by William McVay on Feb. 10, 1920 (COB 86, Folio 103). The portion of the Nestle Down property that is within the project area was eventually incorporated into the campus of Louisiana State University.

In summary, the histories and development of the plantations that once occupied portions of the project area, were especially intertwined from the late eighteenth century until the Civil War. For example, Ann Mather the sister of the founder of the Laurel

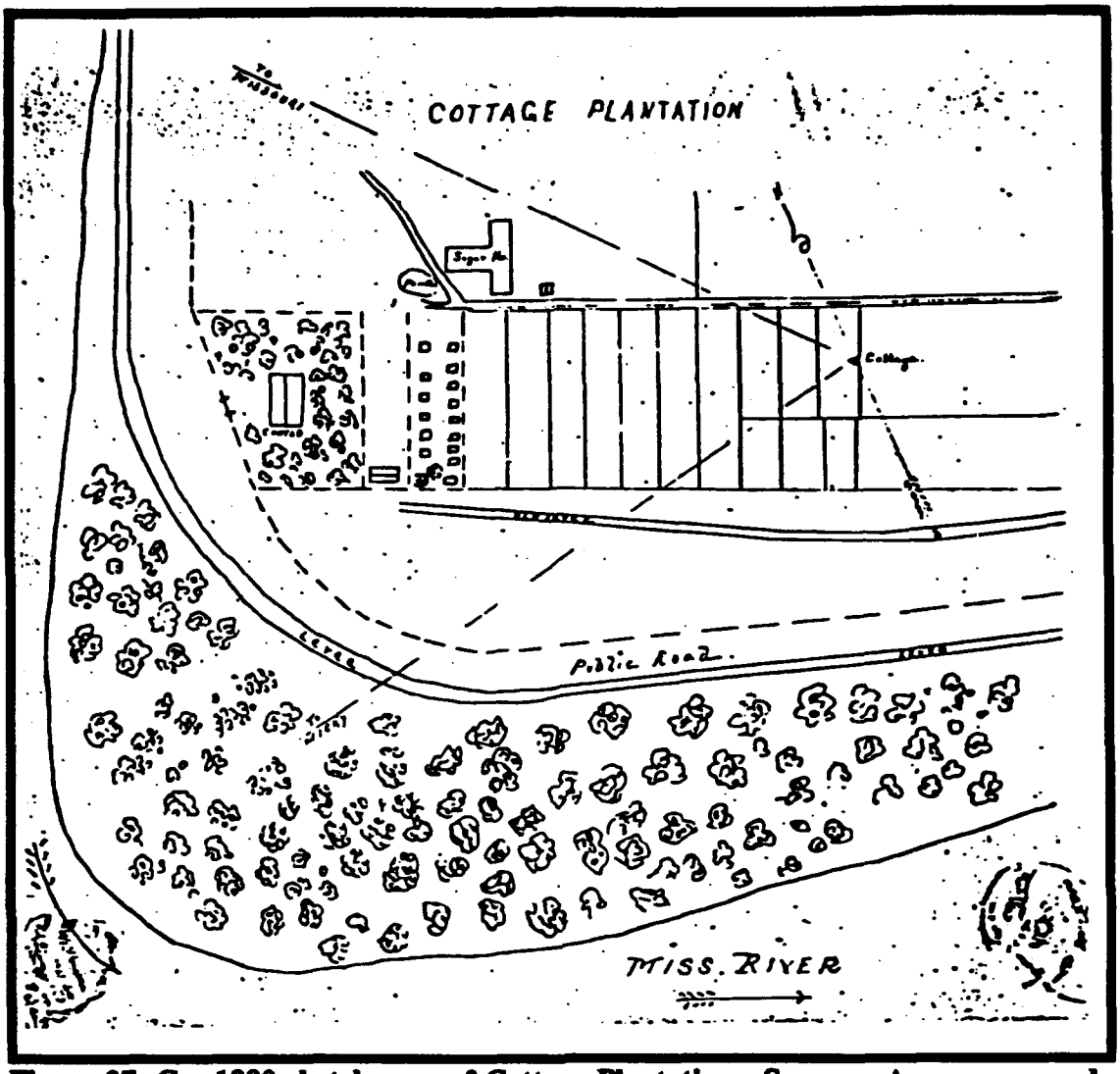


Figure 37: Ca. 1880 sketch map of Cottage Plantation. Source: Anonymous n.d.

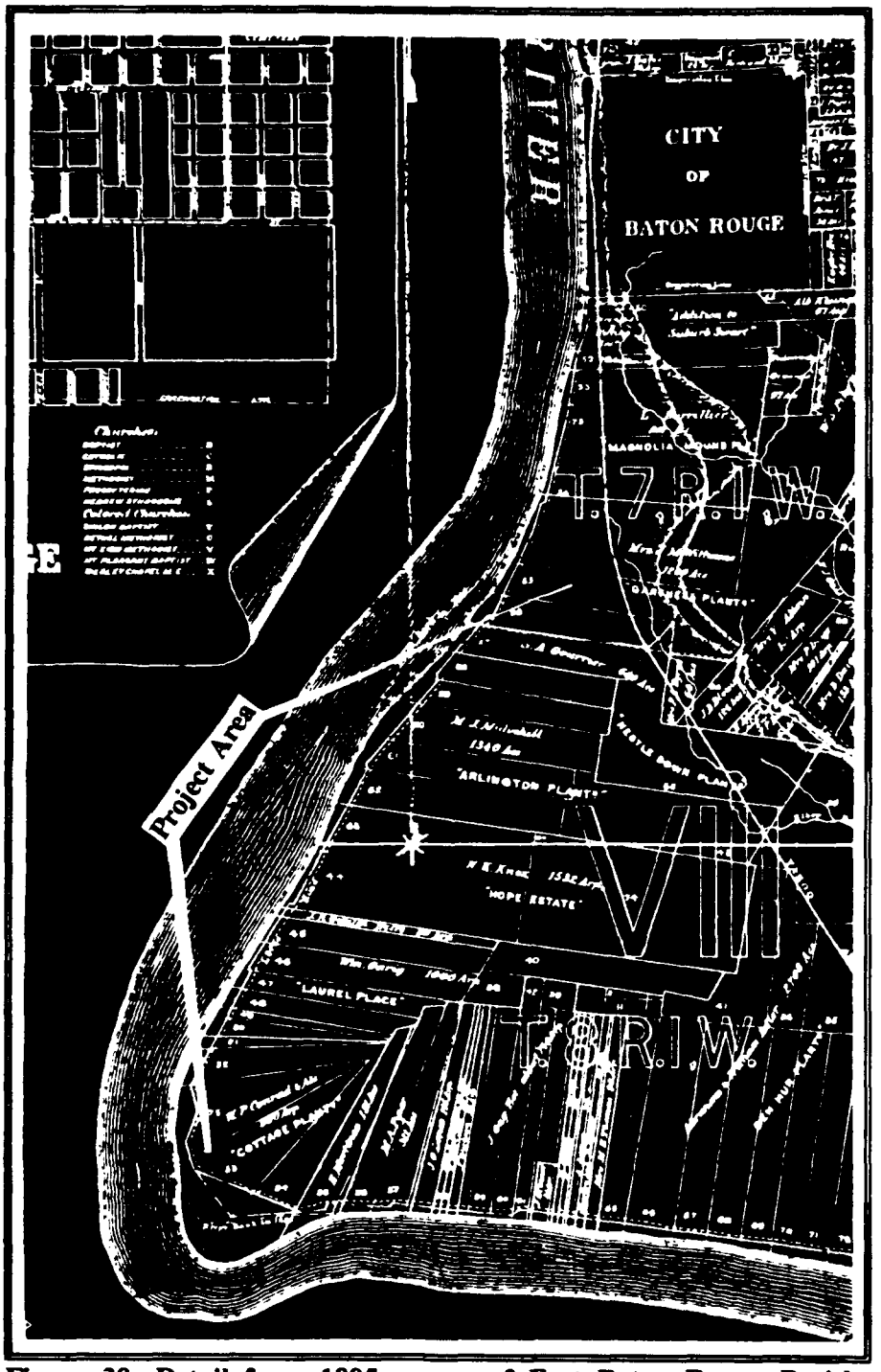


Figure 38: Detail from 1895 survey of East Baton Rouge Parish. Kaiser and Swenson, Civil Engineers. Source: Cultural Resources Section, Louisiana Geological Survey

Plantation, George Mather, married Philip Hicky, the owner of Hope Estate Plantation and another Mather daughter married Abner Duncan, the original founder of the Cottage Plantation. Another member of the Mather family, James, sold 191 ac to Frederick Conrad as he was developing the Cottage Plantation. These three plantations, Hope Estate, Laurel, and Cottage, were part of the planter elite that developed along much of the Mississippi River. The Gartness and Arlington Plantations, immediately to the north of these three properties, apparently did not have the same sort of close familial and commercial ties, but the owners of these two estates probably participated in the same antebellum elite culture based on slavery and the profits of cotton and sugar.

Other Land Use in the Project Area

As noted above, portions of the project area are were sold to the state of Louisiana for the development of Louisiana State University (LSU). Specifically, portions of the Gartness and Nestle Down Plantations were incorporated into the campus. Figure 39 is a survey plat which details the boundaries of the land acquired. Section 55, 56, 57, 58, 59, 60, and 61 of T8S R1W are within the project area. Currently, th land is used as pasture and the only structures in the project area are modern feed shed and barns. The southern boundary of LSU property within the project area is Brightside Lane.

Also, as previously mentioned, portions of Arlington Plantation were sold and subdivided for residential development in the 1920s. Figure 40 depicts a portion of a 1925 survey plat for residential development that incorporated a piece of Arlington Plantation. This plat shows that development was intended in two parcels of property with subdivided lots on two dead end roads: Tupelo and Sycamore Streets.

One boundary of the this subdivision is University Lane, which is now known as Brightside Lane. Of the two streets, homes were built on only the street presented as Tupelo Street. This street is now named Trinity Lane and the portion of Figure 40 which was reserved for a church is now occupied by the New Rising Sun Baptist Church. Sycamore Street was never developed and no homes exist in this location on the lots depicted in Figure 40. Several of the structures on both sides of Trinity Lane, including the church building, are within the boundary of the berm improvement (See Chapter X).

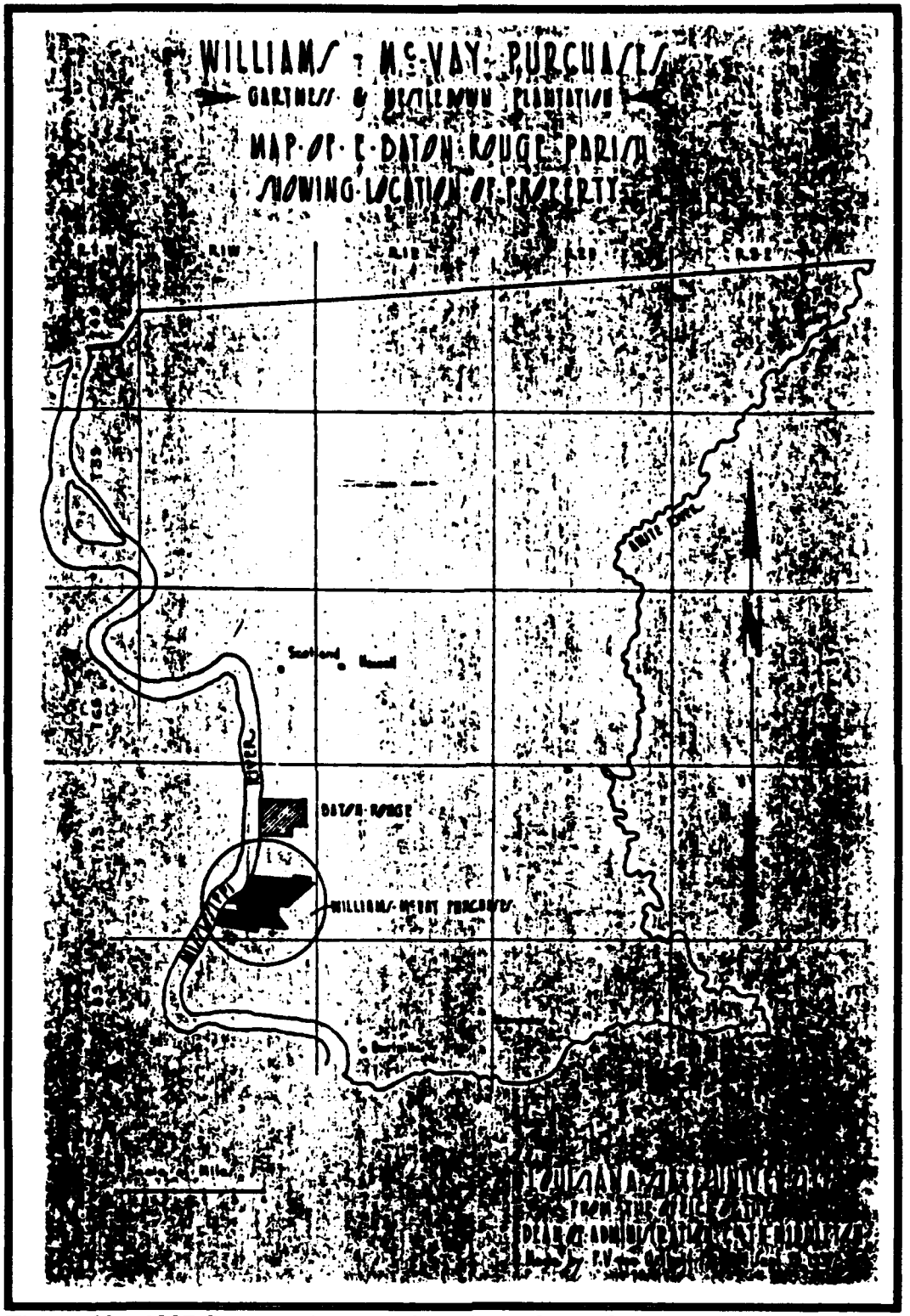


Figure 39: 1937 Surveyor's map of land purchases for Baton Rouge Campus of Louisiana State University. Purchases includes Gartness and Nestle Down Plantations. Source: Office of Facility Planning, LSU

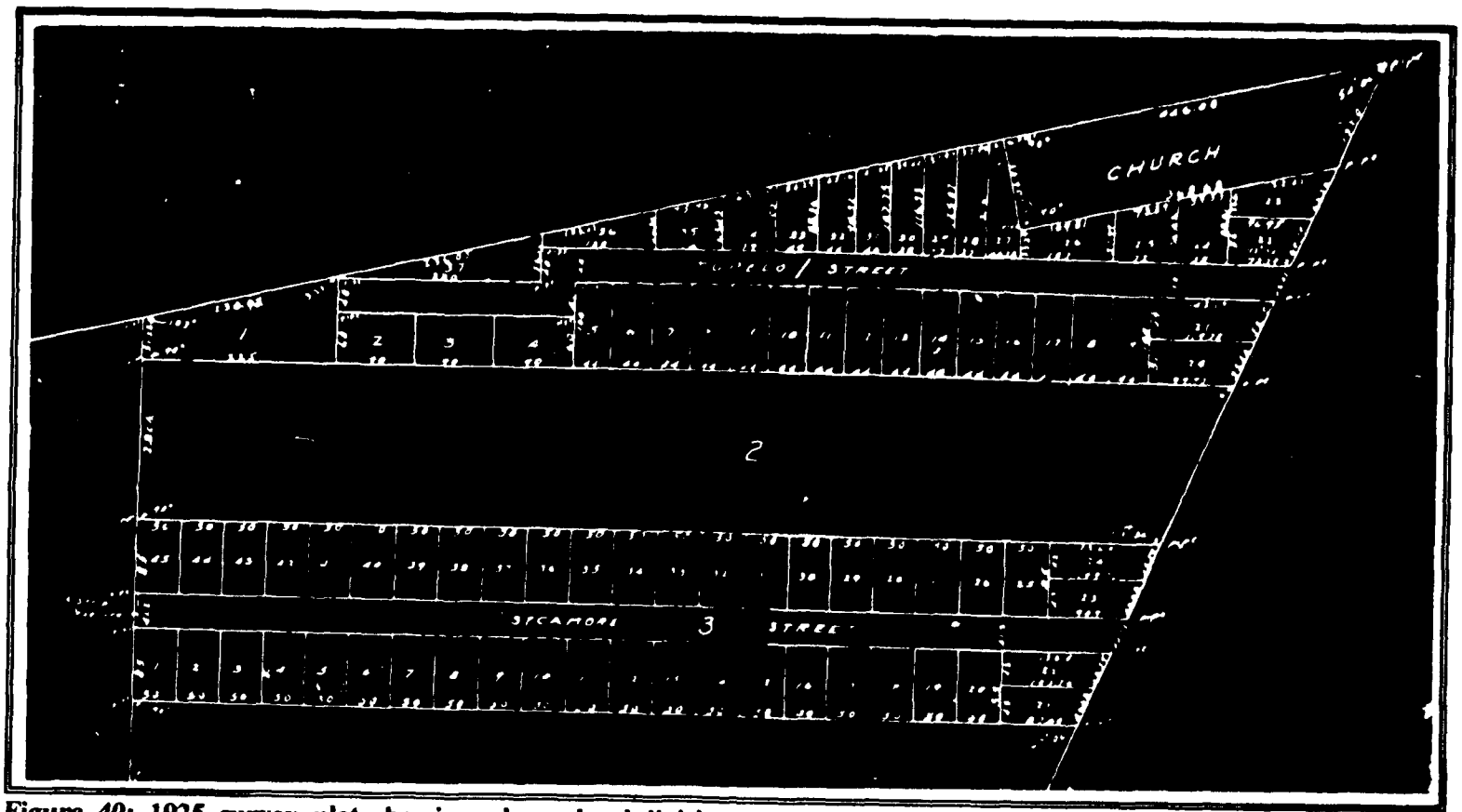


Figure 40: 1925 survey plat showing planned subdivision on portion of Arlington Plantation. Source: Louisiana Department of Transportation and Development

CHAPTER IX

RESEARCH DESIGN AND FIELD METHODOLOGY

The execution of this project involved archival work, field survey, site testing and artifact analysis. Each of these phases of work was a distinct operation during the project, but each phase influenced the execution of the others.

The purpose of this cultural resources survey was to locate all prehistoric and historic sites in or near the project area. A second purpose was to determine the eligibility of any of these sites for inclusion in the National Register of Historic Places. A third purpose of the project was to make recommendations for the treatment of any sites encountered.

The project area involved two distinct areas of work: Mississippi River batture and portions of the land paralleling the landward side of the Mississippi River levee. Revetments were planned for 4.9 mi of Mississippi River batture that were contiguous to a previously revetted portion of the river bank between M-228.1 and 222.2-L. A clay berm was planned for 4.3 mi of easement on the landward side of the existing levee. The widths of the berm varied throughout this portion of the project area and paralleled the east side of Highway 327.

A check of the site files at the Louisiana Division of Archaeology, as well as a knowledge of past archeological investigations in the area, suggested that archeological research in the region had been fairly intense. Investigations at nearby sites such as the Medora Site (16WBR1), and the Campus Mounds (16EBR6), demonstrated that there was a possible prehistoric presence in the general area of the project. Likewise, archival research revealed that there had been late-eighteenth century settlement in the project area as well as five antebellum plantations and one postbellum plantation. Some of these plantations had included the owners' homes as well as outbuildings such as slave quarters, barns, and sugar houses. Also, archival research revealed the land use within the project area during the twentieth century. This land was used in the creation of the current campus of Louisiana State University and residential development.

Actions of the Mississippi River, however, as well as the construction and setbacks of several river levees during the late nineteenth century, drastically altered the landscape in the project area. For example, a significant portion of the batture survey area consisted of borrow pits that resulted from levee construction. Also, crevasses in those levees, subsequent flooding, and heavy sedimentation affected portions of this area. Consequently, while historic records indicated that portions of the project area had an extensive historic occupation, many of these areas have been altered by natural and manmade activities associated with the Mississippi River. Specifically, the retreat of the bank line of the Mississippi River within the project reach was most significant between

river miles 228 and 225. Nevertheless, those portions of the project area that included former historic settlements were regarded as high probability areas for potential cultural resources.

Field Methodology

The field methodology for conducting the cultural resources survey of the project area used procedures as described in the Scope of Services. This methodology consisted of an intensive pedestrian survey in conjunction with systematic shovel testing. The width between each survey transect was no more than 20 m and the shovel tests were placed at 50 m intervals for a survey corridor 200 ft wide in the area of the revetments. These intervals were observed whenever possible, although shovel tests were never placed in stream beds or drainage ditches. Thick vegetation also influenced the placement of shovel tests and the width of the survey transects between crew members. The borrow pits that had been dug for levee construction also biased the placement of shovel tests within the batture portion of the project area.

The historic land within the berm corridor portion of the project area has been used for cultivation or pasture, with the exceptions of existing and previous house sites. Presently, most of the project area is either pasture or fallow field. Louisiana State University is currently farming the northern most part of the berm corridor as part of its agricultural program. The natural stratigraphy throughout project area could be divided into two areas: the batture side and the land side of the levee. Beneath a thin stratum of humus or grasses, the soil is a silty loam with occasional lenses of clay. The Munsell designation for this material is generally 10YR3/2. Most of the shovel tests on the batture side of the levee contained much sandier soils in most portions. Deposition and aggradation of the batture is an obvious ongoing process in this portion of the project area.

Because map research showed bank erosion to be the current primary geomorphological process in the portions of the project area along the Mississippi River, it was decided to examine the cut banks wherever such an examination could be safely carried out. It was assumed that because the area had been occupied both historically and prehistorically, artifacts from some sites may erode out from the current top bank or artifacts could even be found *in situ*. Field personnel always attempted to conduct these bank cut surveys during periods of low water.

Additionally, the artificial levees on the Mississippi River have confined large volumes of suspended sediment. This sediment has quite likely buried cultural deposits, but at a rate that is currently unknown. Therefore, two transects were placed within the project area which involved elevation readings and the placement of soil cores on the batture side and the landward side of the levee. Analysis of the cores attempted to determine the rate of sedimentation on the batture side of the levee and thereby calculate

the depth below the current surface of the batture where cultural resource might be located.

All fill from shovel tests, which were generally 30 cm in depth, were screened through ¼ in screen. About 119 ac were surveyed in the batture portion of the project area and around 105 in the berm improvement portion for a total of 215 ac. Just over 400 shovel tests were dug in the berm portion of the project area and around 250 shovel tests were placed in the batture.

Because alluviation has been one of the most consistent natural processes within the project area, prehistoric sites may be buried beneath the depth of shovel tests. Cultivation, levee building, and road construction within the study area, however, makes the likelihood of finding intact prehistoric sites very small. Methodologies beyond the scope of this project would be necessary to detect such sites, if they indeed exist. Future investigations in the project area, if any, should be very site specific for areas of historic occupation so that cultural deposits can be related to the historic record.

Site Reporting and Artifact Analysis

When cultural material other than recent trash was encountered in the project area the area was tested more intensely. This further testing included shovel testing on a grid at tighter intervals. These sites were also sketch mapped, and included in a soil probe regime in an effort to better define the site. Soil profiles, soil consistency, and artifact content of the shovel tests determined the limits of those sites tested. Only sites of historic occupation or trash dumps that contained historic artifacts were encountered in the project area. All these sites were within the berm levee improvement portion of the project area. All standing structures within the project area were assessed for their potential eligibility for the National Register of Historic Places. Two sites, the Cottage Plantation (16EBR57) and Laurel Plantation (16EBR72), contained standing structures or portions of standing structures that could be considered historic. Architectural assessments were made in both cases. Detailed descriptions of the areas surveyed, criteria for site designation, methods of investigation, investigation results, and other data are presented in Chapter X.

The final phase of the project involved site reports and artifact analysis. All sites encountered during the survey were reported on site forms provided by the Louisiana Division of Archaeology. Artifacts recovered from any sites were washed, catalogued, and analyzed at the facilities of the Museum of Geoscience on the Baton Rouge campus of Louisiana State University. The documents, studies referenced, and procedures used for analysis of the artifacts recovered during the project are presented in Chapter XI.

CHAPTER X

RESULTS OF SURVEY

Mississippi River Batture

Approximately 4.9 mi of unrevetted batture land between the existing artificial levee and the low water bank of the Mississippi River was surveyed within the project reach of M228.1 to 222.2-L. This area also showed signs of repeated alluviation and sedimentation. No sites of human occupation, historic or prehistoric, were discovered in this portion of the project area. All bank line surveys were conducted during low water at Baton Rouge in an effort to locate any sites of human occupation that may be eroding into the river. As noted in Chapter II, the batture portions of the survey area are overgrown by occasional hardwoods such as oaks and hackberries, but river willows are the dominant tree.

The width of the survey corridor in the batture portion measured approximately 200-250 ft from the toe of the levee to the current bank line. Approximately 100 ft of this width incorporated remnants of borrow pits that resulted from the construction of the existing levees. At the time of the survey, these depressions were filled with water.

There were no structures within the batture noted on current topographic maps of the project area and none were encountered in this area during the survey. The area revetted in the summer of 1989, upstream from the already existing segment of the Arlington Revetment, had been frequently used as a trash dump, particularly by Louisiana State University. For the most part, the debris consisted of chunks of concrete, roofing material, and other construction material. In 1979, a group of small electrical transformers was dumped on the batture. These transformers were vandalized for their copper and this exposed their interiors which contained PCBs. In the spring of 1980, chemicals washed out of the transformers and dangerous levels of PCBs were detected in ditches on the east, or landside of the levee. Louisiana State University had the contaminated dirt dug up and safely stored. The Environmental Protection Agency found that the contamination had been lowered to acceptable levels.

Two ceramic and bottle scatters were encountered in the northern extension of the Arlington Revetment, but the inclusion of plastic in these scatters argued against any antiquity of cultural significance. Nevertheless, those ceramic sherds with maker's marks were collected for dating. These sherds were found to be recent, and probably dumped within the last 20 years. Attempts to discover the presence of a soil horizon that may have been the scene of past occupation in the batture portion of the project area were described in Chapter IV.

LSU Berm Improvement Corridor

The survey of the LSU Berm Improvement Corridor encountered several locations containing cultural material. These locations consisted of occupied standing structures, unoccupied standing structures, deposits of cultural material that were associated with a structure, and cultural material that was *not* associated with a standing structure. Those locations that were deemed significant in some regard to warrant designation as an archeological site are reported as such and their eligibility for the National Register of Historic Places is considered. Other locations that were not reported as archeology sites are also described. Figure 41 shows the locations of all the sites of cultural material as well as the locations of occupied standing structures in or near the project area.

Occupied Standing Structures

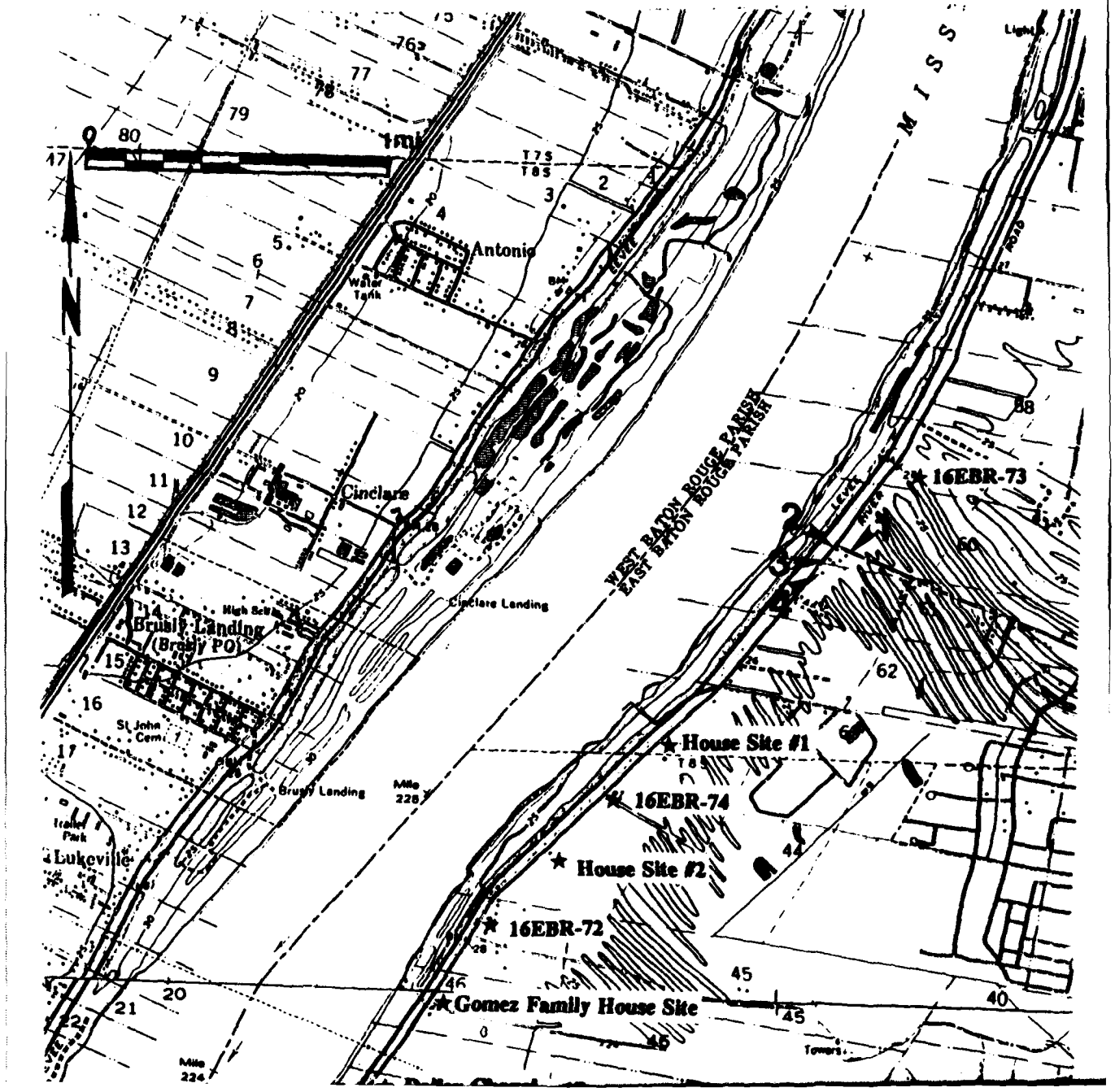
Several standing structures near Brightside Lane, formerly called University Lane, are within the survey corridor for the LSU Berm Improvement Item. Three standing structures are located south of Brightside Lane facing the River Road. Figure 41 is a detail of the 7.5 minute USGS topographic map Baton Rouge West, LA. which locates these buildings. Figures 42 through 45 are photographs of these structures as enumerated in Figure 41. All of these buildings are family residences that are currently occupied. None of them are of architectural or historical significance that would make them eligible for the National Register of Historic Places.

Approximately .2 mi south of the intersection of Brightside Lane is the intersection of Trinity Lane with River Road. Trinity Lane is a dead end gravel road between 500 and 600 ft long that has a total of nine structures on both sides. The New Rising Sun Baptist Church, facing River Road, is located on the southern side of Trinity Lane at its intersection with River Road. The church building and two houses across the lane from the church are within the survey corridor of the LSU Berm Improvement Project. Figure 46 is a photograph of the houses along Trinity Lane and clearly shows the church.

As reported at the end of Chapter VIII, Trinity Lane was originally surveyed as Tupelo Street in 1925 after the acquisition of a portion of Arlington Plantation. This residential development apparently did not take place immediately, however, because all the structures on Trinity Lane appear to date much later than the 1920s.

16EBR73 LSU Field/River Road Dump Site

The Louisiana State University Field/River Road Dump Site consists of a scatter of historic glass, ceramics, brick, and metal spread about in a plowed field. The site was detected after recent plowing. Only a portion of the scatter is within the survey


Antonio
Water Tank
Cinclare
Cinclare Landing
Brusly Landing
(Brusly PO)
High School
St John Cem
Brusly Landing
Mile 228
Trailer Park
Lukeville
Mile 224
WEST BATON ROUGE PARISH
EAST BATON ROUGE PARISH
MISS
LEVEE
ROAD
16EBR-73
House Site #1
16EBR-74
House Site #2
16EBR-72
Gomez Family House Site
T7S
T8S
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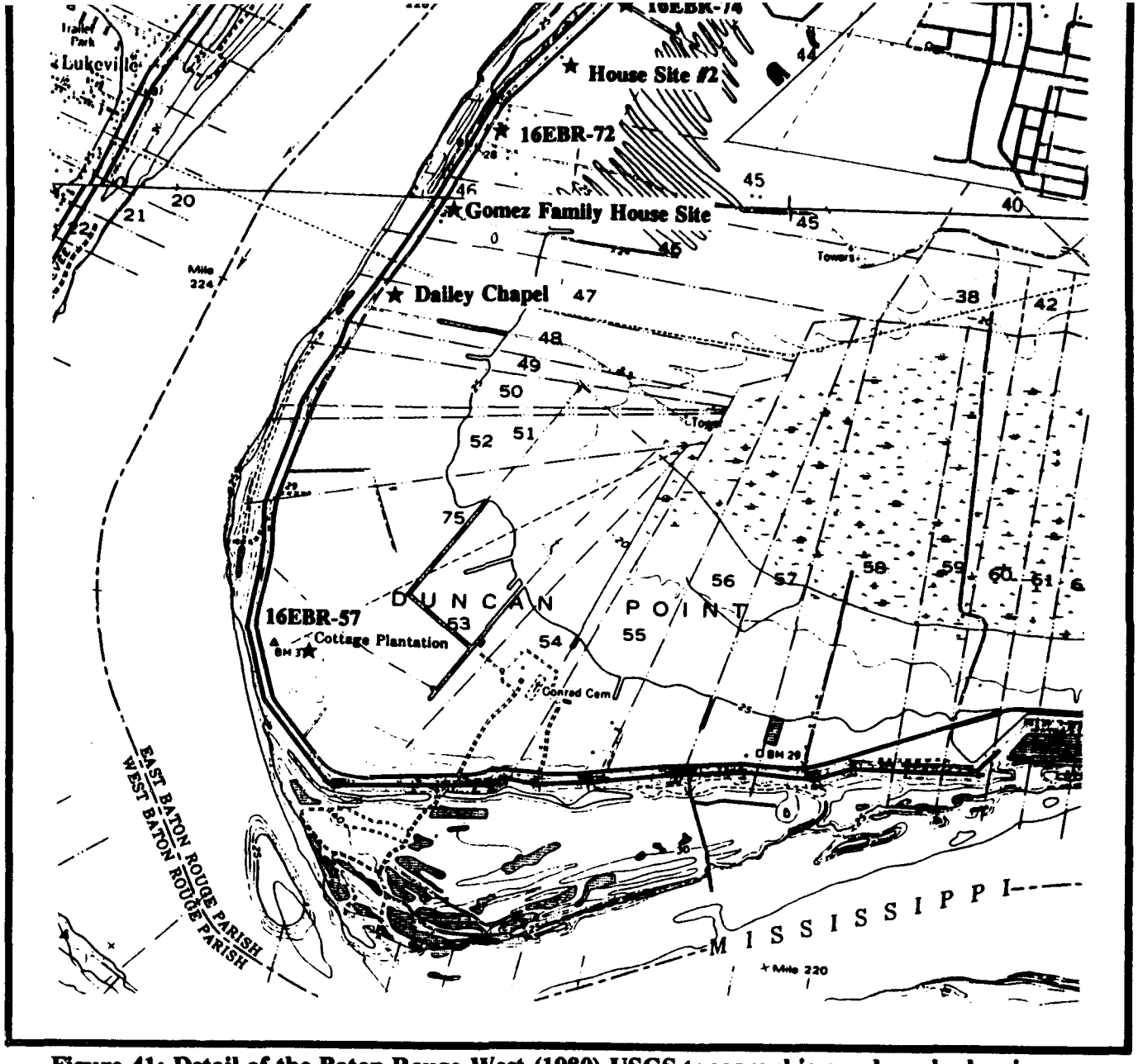

Figure 41: Detail of the Baton Rouge West (1980) USGS topographic quadrangle showing occupied standing structures 1 through 4 and unoccupied standing structures as well as sites of cultural material in vicinity of project area

Figure 42: Photograph of occupied standing structure 1 at 4075 Brightside Lane. Direction: Facing South

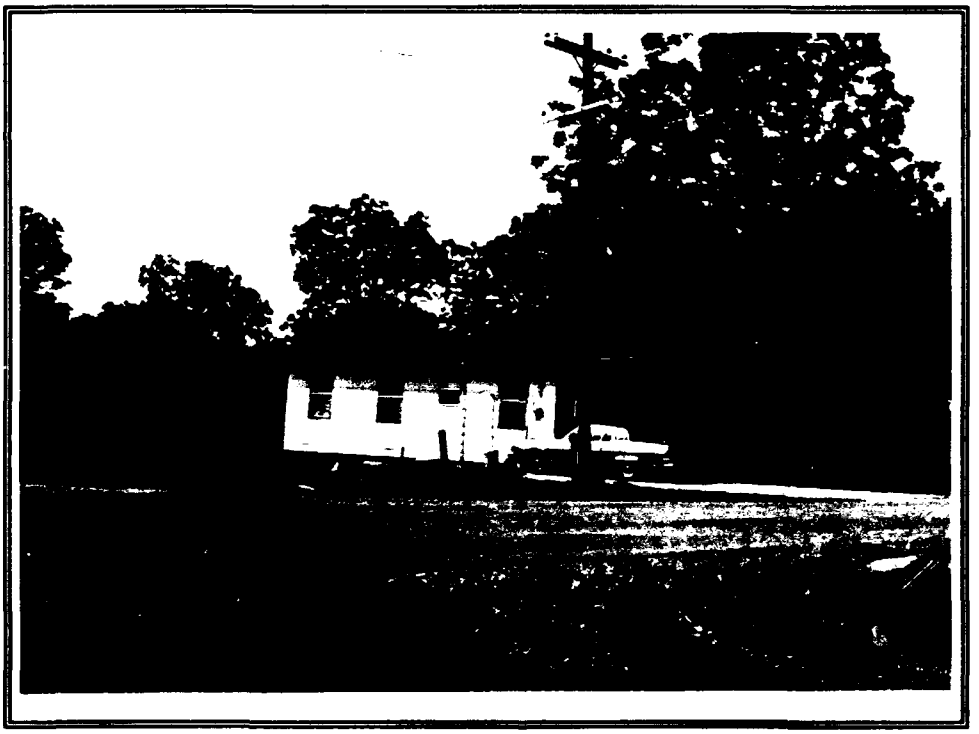

Figure 43: Photograph of occupied standing structure 2 on south corner of Brightside Lane and River Road. Direction: Facing southeast

Figure 44: Photograph of occupied standing structure 3 on River Road. Building once known as Couvillion Store. Direction: Facing East

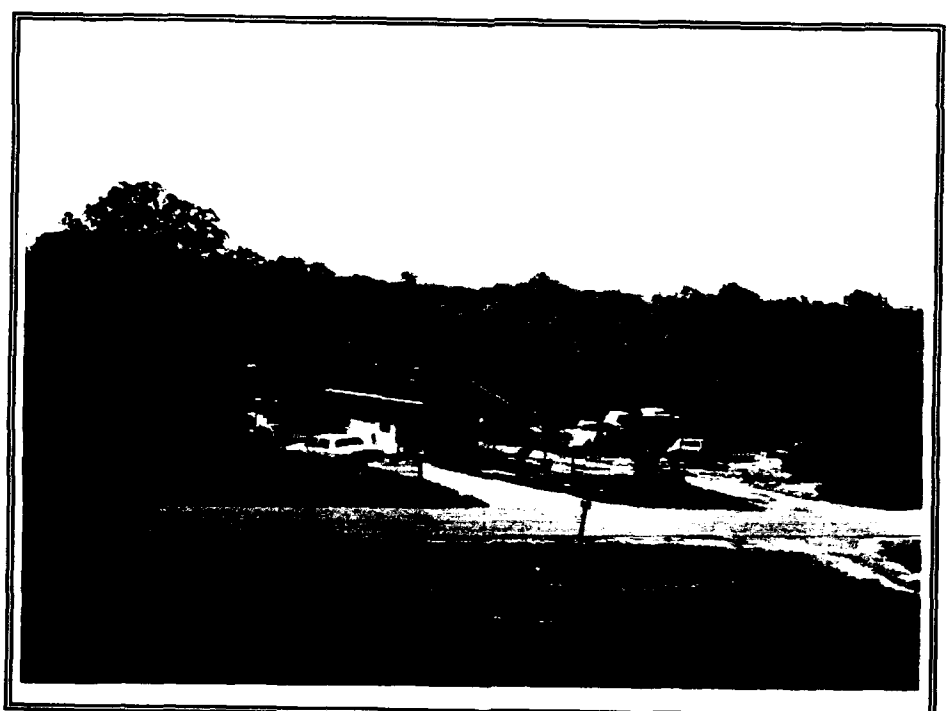

Figure 45: Photograph of occupied standing structure 4 on River Road. Direction: Facing east

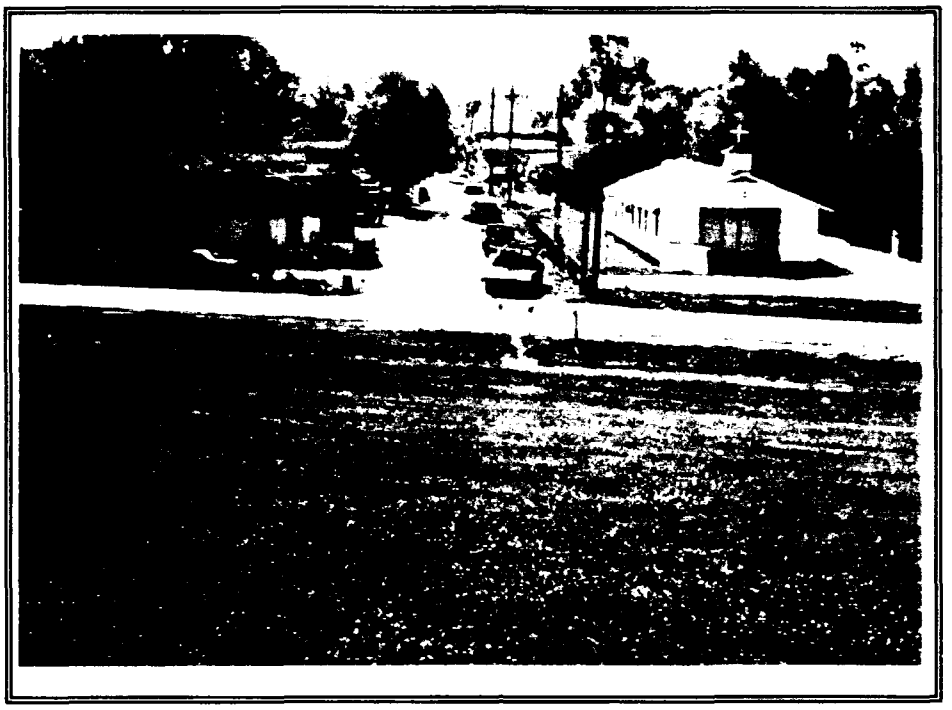

Figure 46: Photograph of structures on Trinity Lane at intersection with River Road. Houses on left and church will be impacted by berm construction. Direction: Facing east

boundaries for this project, while the majority is to the east and outside of that boundary. The scatter extended for about 100-150 ft with no real concentration. The artifacts appear to have been scattered by frequent plowing and discing. Figure 47 is a sketch map of this site, which shows the project boundary and the location of shovel tests place in and around the artifact scatter.

None of the shovel tests recovered any artifacts or encountered any subsurface features to indicate a structure or any sort of prolonged occupation. All the artifacts recovered were on the surface in a cultivated field that had been recently plowed. Because there was only a small amount of architectural debris such as brick, wood, or glass, and a mixture of both domestic and industrial debris, it was felt that this artifact scatter was the site of a historic dump rather than the remains of a house site. Nevertheless, because of the amount and nature of some of the artifacts originating in the late nineteenth to early twentieth centuries, it was deemed necessary to report this as an archeology site to the Louisiana Division of Archaeology. It was reported as the LSU Field/River Road Dump Site (16EBR73). A detailed analysis of the artifacts from this site are presented in Chapter XI.

The LSU Field/River Road Dump Site was on the grounds of the former Arlington Plantation. As noted in previous chapters, the major structures that were associated with this plantation were destroyed by the bank line erosion of the Mississippi River that occurred sometime between 1879-80 and 1921. There is no record of a structure at this location in any documents or maps of this portions of the project area.

House Site #1

This location of cultural material was originally considered a dump, but with more recent debris than 16EBR73. Figure 48, a sketch map of the location, shows this material and other features at this site. It appears, however, that this material marks what was once a house site because cast concrete housing piers and a set of cast concrete steps were found among recent trash. The concentration of structural material designating this was within a barbed wire enclosure that measured about 200 x 100 ft (60 x 30 m). A check of maps that incorporated the project area did in fact, show a structure in this location (See Figure 41). The concrete piers found in the area were not in any particular pattern which might have given an indication of the structure's size. Also, the structural debris around the site contained plastic, asbestos, and other material indicated that this structure was occupied until at least the 1960s. The manner in which the material was arranged at this location suggested that it had been bulldozed and much of the reusable building material carried away. The shovel tests at the site indicated that the soil around the site had been disturbed. No subsurface artifacts were recovered in any of the shovel tests placed in the location as part of the original shovel testing for the survey. The nature of the occupation at House Site #1 is complicated by the recent trash that has been thrown on the remains of the house structure.

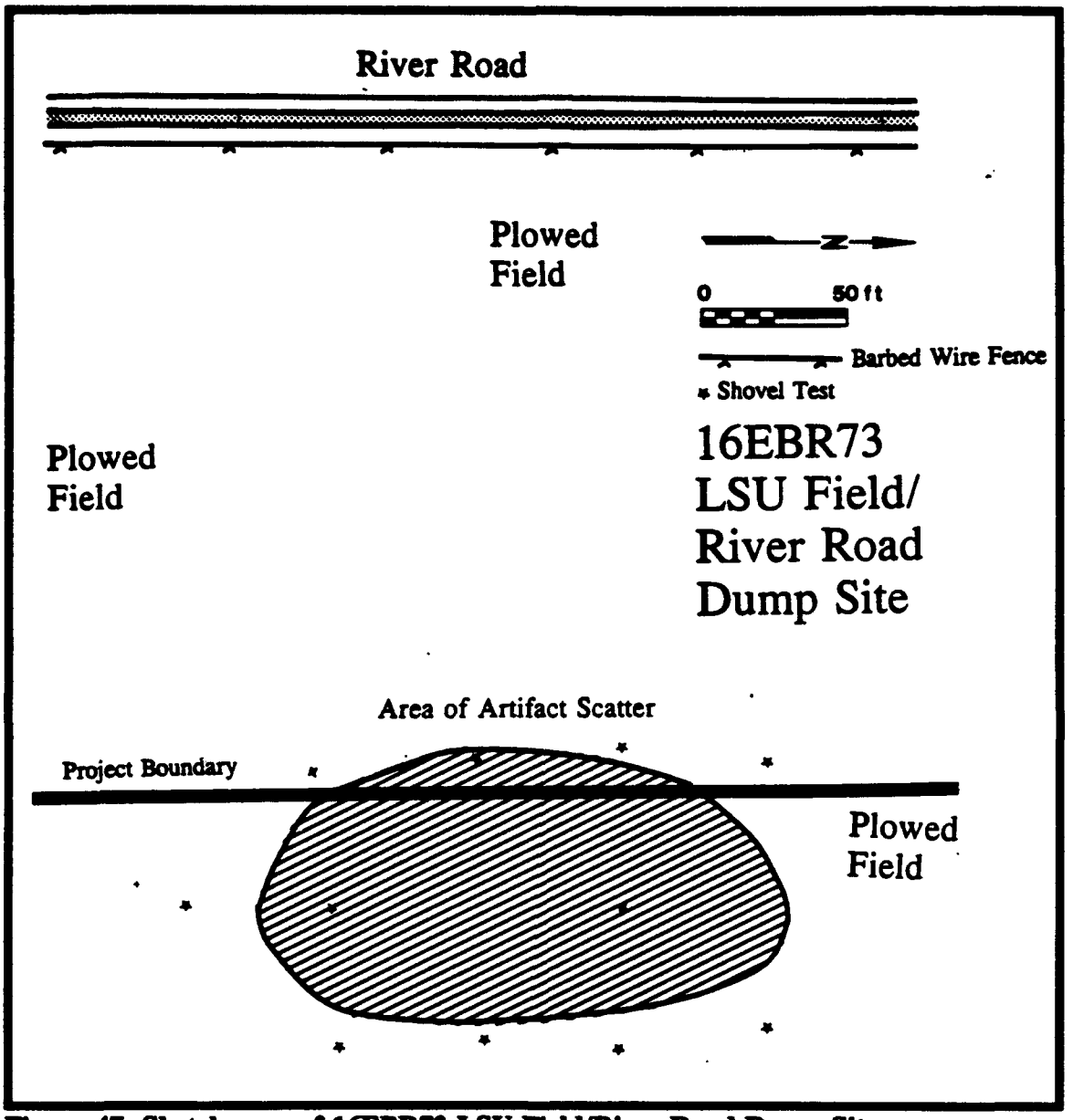

Figure 47: Sketch map of 16EBR73 LSU Field/River Road Dump Site

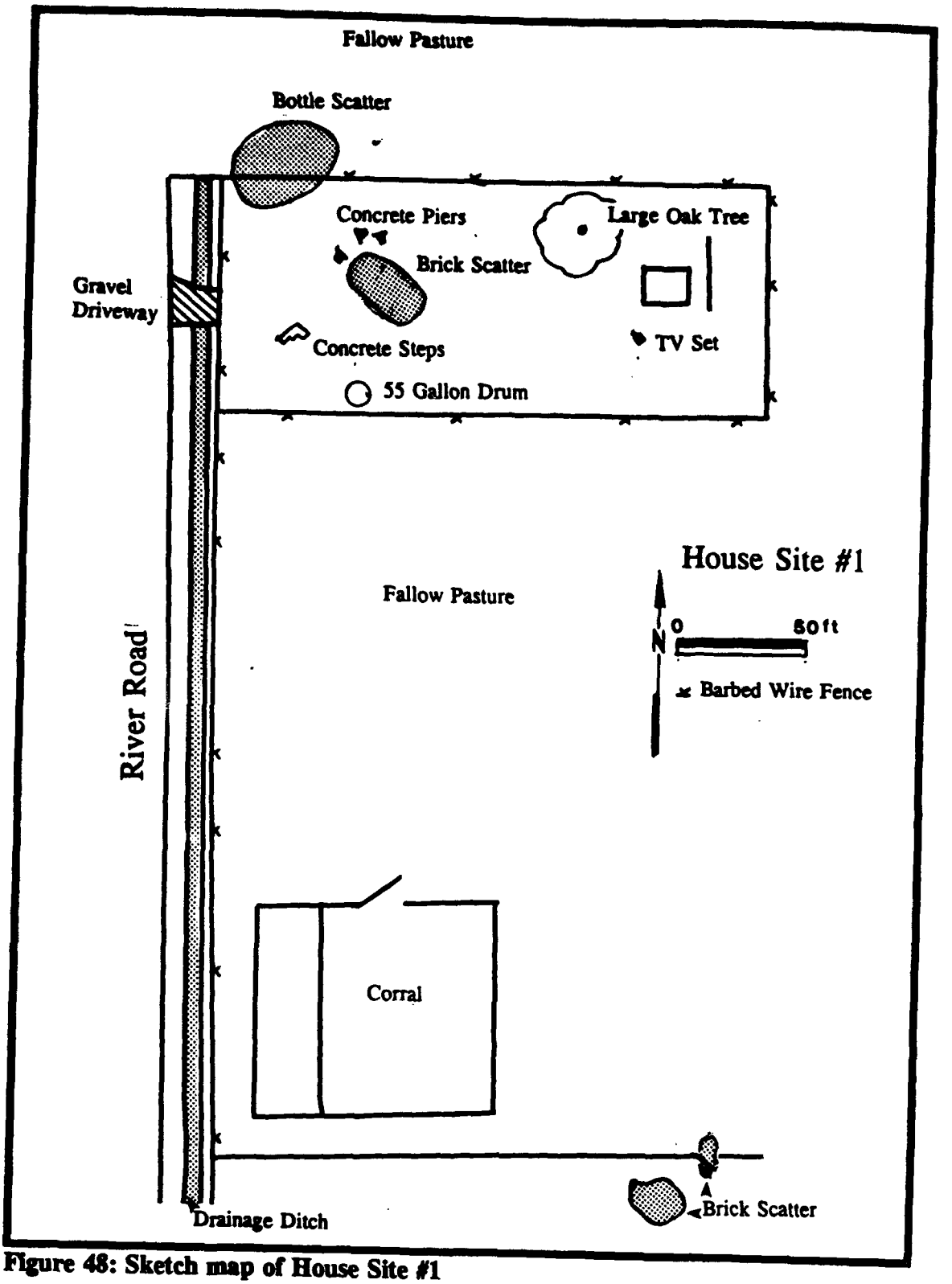

Figure 48: Sketch map of House Site #1

A wooden and metal corral stands approximately 200 to 250 ft south of House Site #1 across a fallow pasture that has grown up into scrub brush. Although the corral was somewhat in disrepair, it appeared that it was still being occasionally used to hold cattle. A concentration of brick fragments has been placed at a gap in the fence south of this corral apparently to alleviate muddy conditions when cattle pass through the gap.

Although on property that was once part of the Hope Estate Plantation, it is not likely that the structure that once stood at this location, or the corral, were part of that plantation. The structures associated with Hope Estate were located to the west of this site and had been eliminated by the changing course of the Mississippi River. Moreover, none of the material associated with House Site #1 dated from a nineteenth century antebellum occupation. Rather, it is suspected that this house site dated from sometime earlier in the twentieth century and was bulldozed in the past twenty years. In all likelihood, the structure was a wooden frame house and the reusable material was carried away once the house had been knocked down.

16EBR74, River Road Dump Site

A thin scatter of historic artifacts was found on both sides of a small drainage cut within the survey corridor. This scatter was initially noticed eroding out into the drain cut in an area that had experienced heavy disturbance due to cattle grazing. Figure 49 is a sketch map of the site and surrounding area. The artifacts collected on the surface consisted primarily of ceramic material, but also some glass, metal, and brick. The surface scatter was on either side of the drain cut and probably predated that cut. As was the case with 16EBR73, the lack of a concentration of artifacts and structural debris seemed to indicate that this location was a historic dump rather than a habitation site.

The River Road Dump Site was also tested by shovel tests at intervals of about 5 m in and beyond the artifact scatter. These shovel tests were negative and were in the context of an alluvial soil matrix that had a Munsell designation of 5YR 4/2. Also, the soils around the scatter of artifacts showed signs of disturbance that had probably resulted from cattle grazing or the digging of the drainage ditch. From these tests the surface material, 16EBR74 appeared to be an artifact scatter that measured about 50 x 50 ft (15 x 15 m). There was no perceptible pattern of distribution within this small area and it was concluded that the artifacts had been placed in this location in a single episode of dumping.

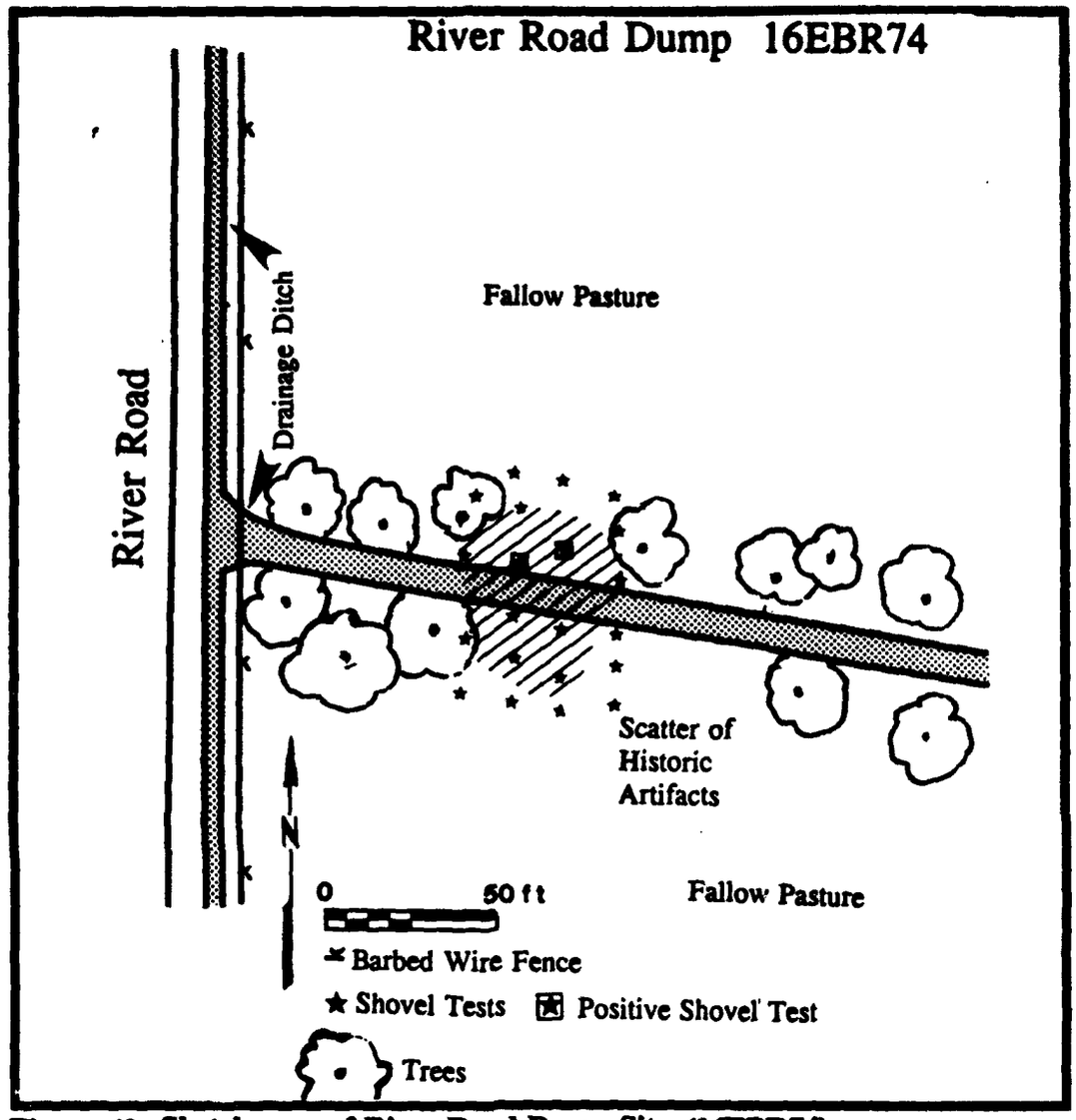

Figure 49: Sketch map of River Road Dump Site (16EBR74)

Chapter XI contains an analysis the artifacts recovered from this site. Because some of the debris associated with this dump, such as bottle types, date it to the late nineteenth century, it was felt that this site contained material old enough that it should be reported as an archeological site.

House Site #2

This location consists of a cypress shot-gun house that is unoccupied and overgrown by vegetation. Since its abandonment, the short road that ran to it has served as a magnet for the dumping of more recent trash. It is currently in a state of advanced disrepair and would seem to have been abandoned for several years. The floorplan of the structure is about 25 ft square with a kitchen addition in the rear that is about 10 ft square. The house has a corrugated tin roof, the remains of a screened front porch, and several "six over six" style windows on the sides. The construction of the house is cypress barge boards nailed to a cypress and pine frame. The construction appears to have been of the most basic type, with almost no ornamental work added to the house. The house rests on cast concrete piers and has incorporated pressboard into part of the construction, both of which would seem to argue against any significant age for the house. A corrugated tin and fiberglass shed, filled with trash, is behind the structure. This may have been a well house, but more likely it was an outhouse. A small hog or dog pen is located at edge of a tree line at the northern edge of the location.

Figure 50 is a sketch map of House Site #2 and Figures 51 and 52 are photographs of the front and rear of the house. When originally encountered during the survey, the house was surrounded by recently dumped trash, although it is possible that some of this debris belonged to the last occupants of the house. Shovel tests at this location recovered material that appeared to result from the recent trash dumping and post dated the original occupation of the house. Sometime after the initial survey, measurements, and shovel testing at the site, the structure at House Site #2 was bulldozed and all usable construction material was apparently hauled away. Because of this destruction and the difficulty of locating any artifacts at the site among more recent trash to give the site cultural significance, House Site #2 was not reported as an archeological site.

Although this structure was located in a portion of the project area that would have been on the grounds of the Hope Estate Plantation, it did not appear that this structure dated to the antebellum years. Rather, the structure would have likely dated from some time in the early twentieth century and appears to have been a contemporary of the structures at the nearby Laurel Plantation.

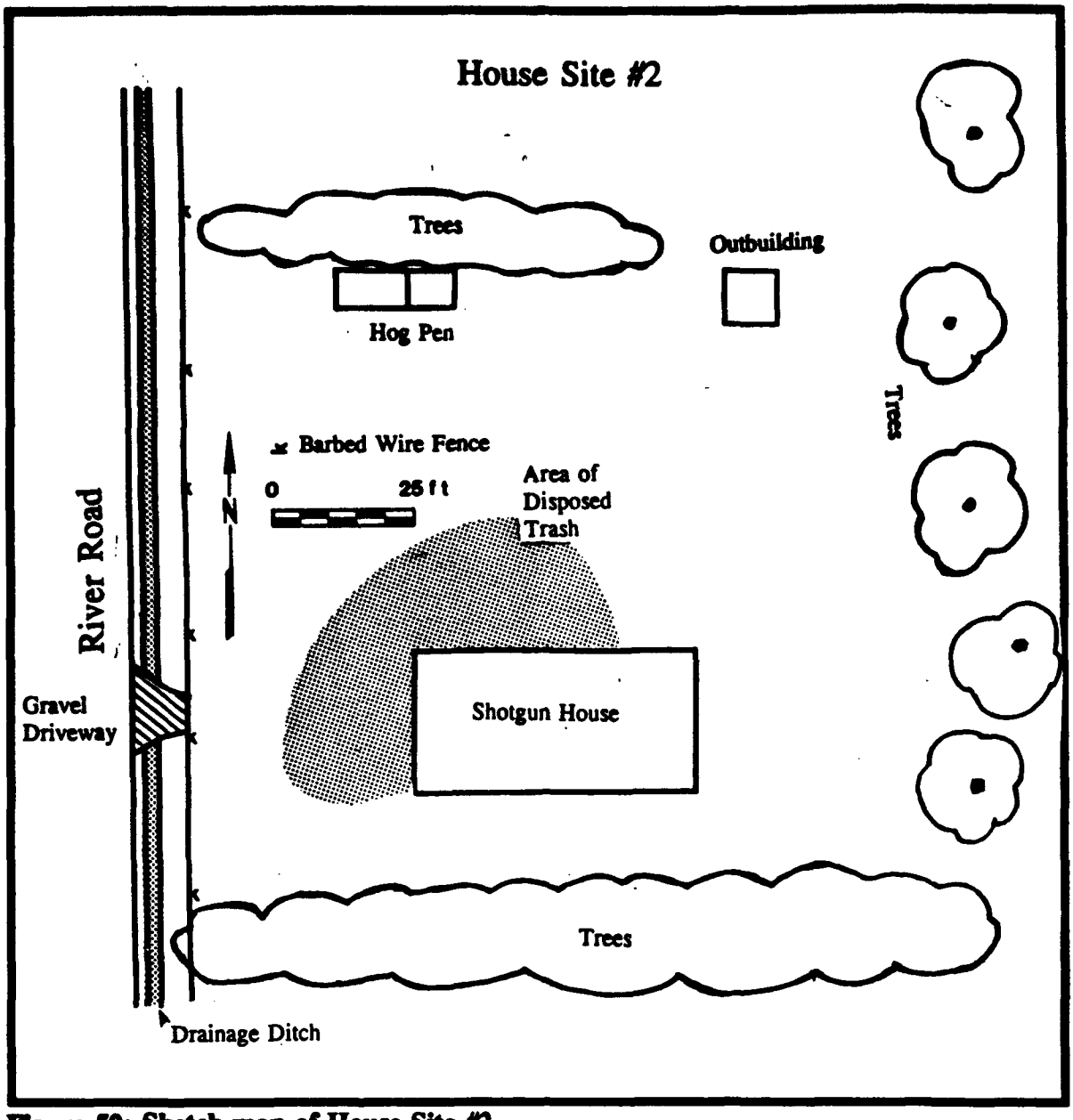

Figure 50: Sketch map of House Site #2

Figure 51: Photo of front of House Site #2

Figure 52: Photo of rear of House Site #2

16EBR72 Laurel Plantation

This site consists of seven standing structures that were once part of Laurel Plantation when it was a going concern. Three abandoned domestic structures, as well as four barns or sheds, are all that is left of the plantation (Figure 53). As noted in Chapter VIII and in Figure 36, this plantation once consisted of additional buildings that have either been removed or torn down. A cluster of four buildings at the northern end of this site are within the project area.

Structure One seems to be the owner's or manager's house (Figure 54 and 55). It is a modest Acadian style type which appears to date from the late nineteenth or early twentieth century. The house is built entirely of cypress and is sheathed with clap boards. The main body of the house is square in plan and is gabled at the side with the front porch included under the pitch of the main roof. The porch is supported by simple rectangular posts with modest capitals and no bases. The house is four bays wide and has two entrances and two windows in the front. Inside the house, the wall and ceiling sheathing techniques are very typical of the early twentieth century (e.g. two inch painted beaded boards). The house has two fireplaces: one central to the main portion of the house and one in the rear wing in which the original kitchen/servant's quarters were located. All of the window frames which remain today are "six over six" and also made of cypress. In addition, the house is wired for electricity and plumbed for gas. The house is currently used as a hay storage barn and has apparently been unoccupied for some time. While the foundation of brick piers appears to be strong, the wood framing is beginning to deteriorate and nothing has been done to halt the process. The front porch is in serious disrepair with missing floorboards and a flimsy railing. Much of the metal roof is missing and many of the windows are broken or boarded up.

The other domestic structures at Laurel Plantation are simple tenant shotgun shacks and are in very poor condition (Figures 56 through 59). Both of these homes have modern caste concrete piers which probably replaced their original brick piers. The shotgun houses are basic and utilitarian with no apparent attempt at ornamentation or other amenities. Both houses are constructed of vertical bargeboards which are nailed at the base plate and top plate. Narrower boards were then nailed over the joints on the outside to keep out the breezes. The corners on the inside are braced with diagonal members and there appears to be no interior finish material such as beaded board, plaster, or sheet rock. Each house does have a fireplace with a simple mantle. The only apparent difference between the two houses is that one has an attached porch roof while the other's porch roof is part of a continuous gable. Both are unoccupied and used as storage sheds.

All the structures associated with Laurel Plantation are presently in very bad repair. It does not seem that the buildings are a priority to the current owner as they have been left to deteriorate for some time. In fact, the barns at the site, located between the Acadian style house and the shotgun houses, are in better condition than the

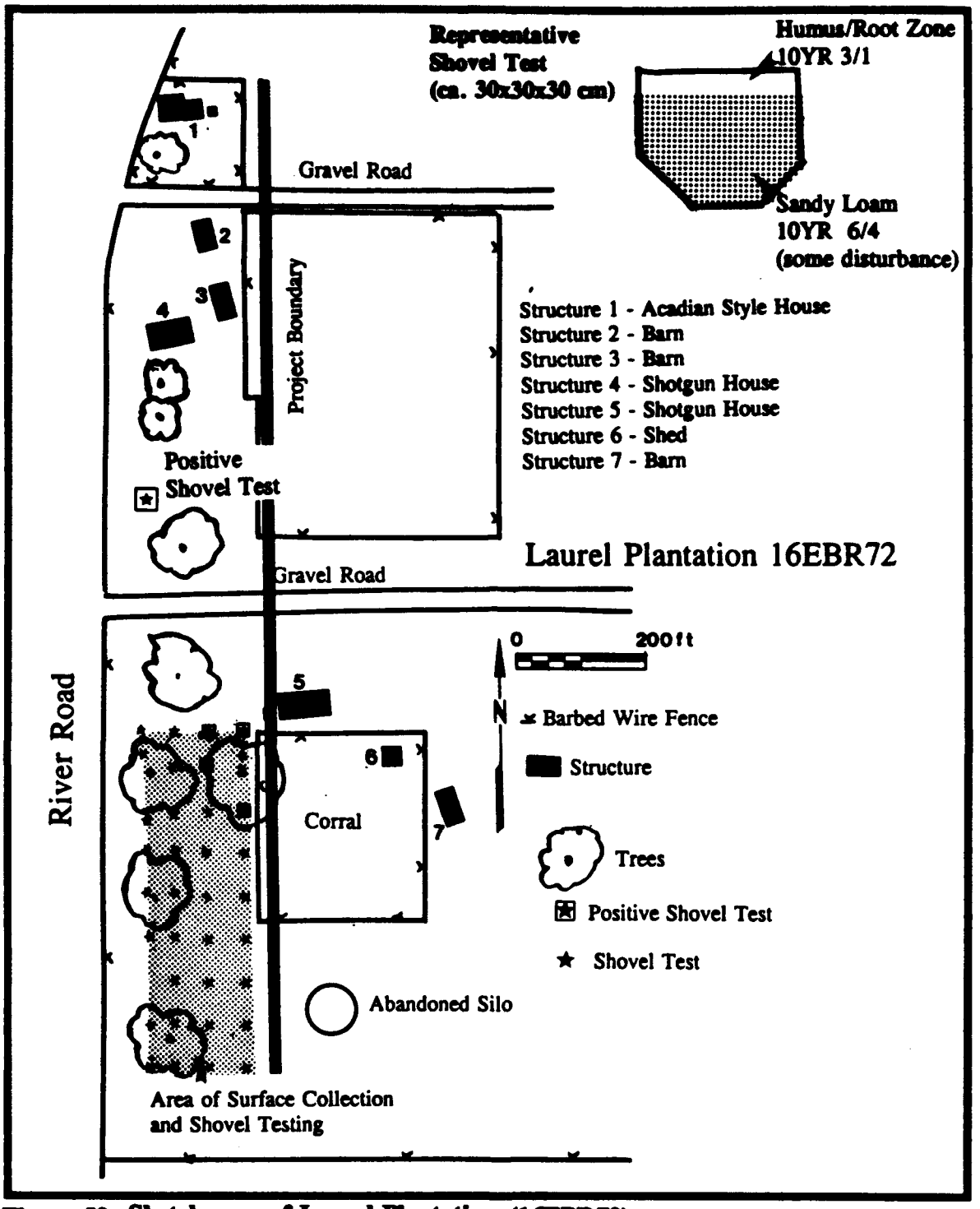

Figure 53: Sketch map of Laurel Plantation (16EBR72)

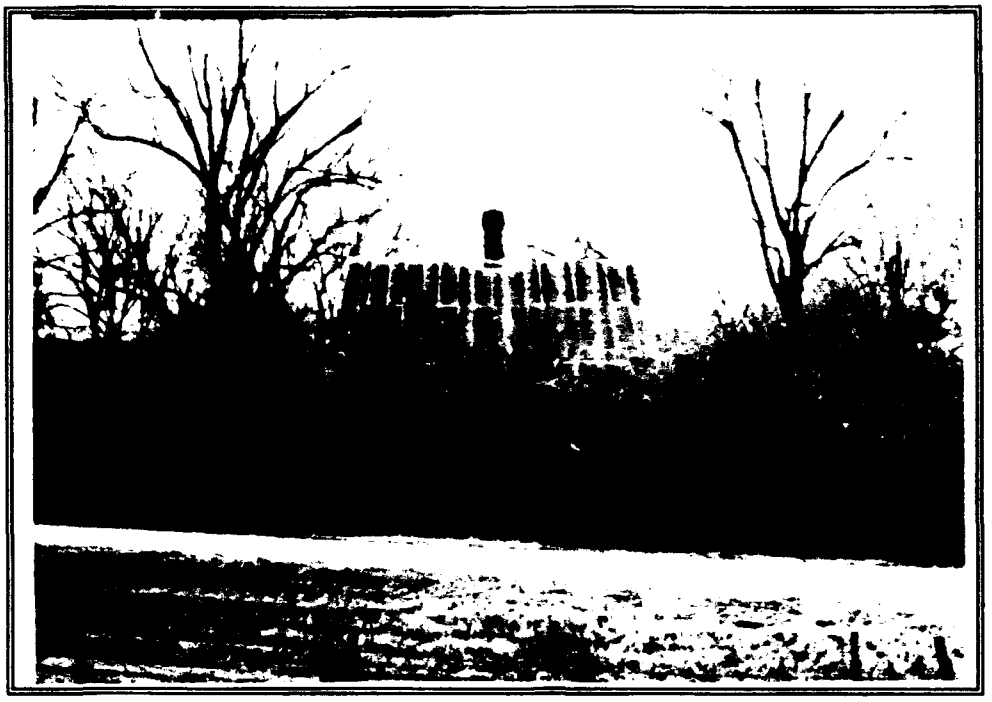

Figure 54: Remains of Acadian style house, Structure 1, at Laurel Plantation (16EBR72)

Figure 55: Remains of Acadian style house, Structure 1, at Laurel Plantation (16EBR72)

Figure 56: Remains of "shotgun" style house, Structure 4, at Laurel Plantation (16EBR72)

Figure 57: Remains of "shotgun" style house, Structure 4, at Laurel Plantation (16EBR72)

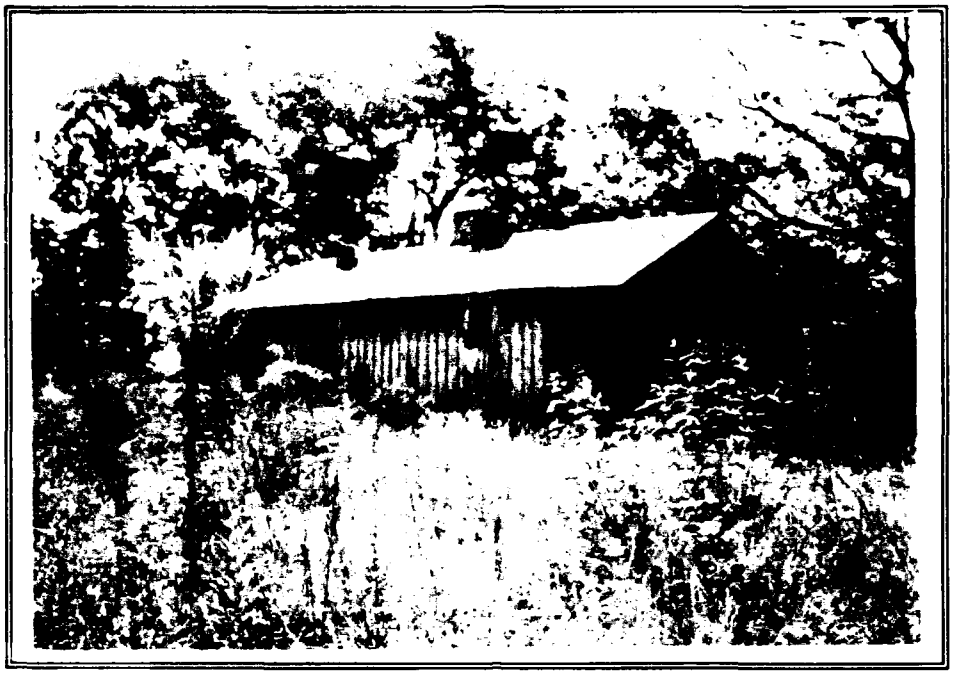

Figure 58: Remains of "shotgun" style house, Structure 5, at Laurel Plantation (16EBR72)

Figure 59: Remains of "shotgun" style house, Structure 5, at Laurel Plantation (16EBR72)

former residential structures. While the Acadian style structure is not a particularly interesting or well constructed example of this regional style, the Laurel Plantation does represent an accurate example of the living conditions at such farms, (i.e., manager vis-a-vis tenants).

A single shovel test during the original survey recovered a brick fragment, a single ceramic sherd and bone fragments. This location is shown in Figure 53. Other shovel tests were placed in one meter intervals in the cardinal directions to a distance of five meters from this positive shovel test. None of these recovered any artifacts. This material was regarded as an isolated find and not indicative of a historic dump or the location of a former structure.

Figure 53 also shows the location of an area which proved very productive for surface collection at the Laurel Plantation Site. Over 250 artifacts were collected in an area near Structure 5 between River Road and an abandoned corral. This area was distinguished by two large live oaks which stand approximately 400 ft apart. It was initially thought that these oaks may have served as ornamental growth in the front yard of a structure that is no longer standing, although there is no archival data that indicates a structure in this location. Shovel tests were placed in 50 ft (15m) intervals in the area where the surface collection had been most productive to determine if there was any evidence of a structure in this portion of the site. These shovel tests, however, were not as productive. Tables in Chapter XI presents an analysis of the artifacts recovered from the surface and from the shovel tests in this portion of the site. Because the surface collected artifacts failed to indicate a former house site, concentrated trash pit, or any other feature, no test units were placed at the site. Also, the surface and the shovel tests indicated that the area had been disturbed. The stratigraphy of a representative shovel test in the area of surface collection is also shown in Figure 53.

Artifacts of brick, ceramics, glass, metal and plastic were recovered from the Laurel Plantation Site, but none of these artifacts could be provenienced to a particular structure. The 1908 plan of Laurel Plantation (see Figure 36) shows that there may have been structures at the site other than what exist there today. There have been levee setbacks and reconstructions of River Road so that some of the buildings in the early map may have been moved or torn down as a result of that activity and these artifacts could have originated from those structures. The datable artifacts recovered from the Laurel Plantation Site (see Chapter XI) did show, however, an occupation concurrent with that of the architecture of Laurel Plantation buildings: late nineteenth and early twentieth centuries.

Because of the relative antiquity of the entire site, the Laurel Plantation has been reported to the Louisiana Division of Archaeology as 16EBR72. The buildings at the site, although in relatively poor condition, are still standing and representative of late nineteenth to early twentieth century rural architecture in the Lower Mississippi Valley. In addition, surface and subsurface artifacts are extensive enough to indicate that further

archaeological research at the Laurel Plantation Site might recover more data. The impact of the LSU Berm project will be direct as far as structures 1 through 5 at the site are concerned and will extend to other portions of the site as well thereby disturbing any deposits of artifacts. The extensive placement of test units throughout the Laurel Plantation Site was beyond the scope of this project, but would be warranted if the site were faced with disturbance by future development. The combination of relatively intact structures and possible associated artifacts suggest that the Laurel Plantation Site contains further potential for archaeological research despite some disturbance at the site. For these reasons, the Laurel Plantation (16EBR72) should be deemed potentially eligible for inclusion in the National Register of Historic Places.

Gomez Family House Site

Shovel tests recovered brick fragments, and a scatter of glass, metal and ceramics artifacts at a location on the River Road about 0.2 mi south of Laurel Plantation (16EBR72), the northern terminus of the Berm Improvement survey corridor. This material was situated approximately 200-225 ft from River Road, just at the edge of the survey corridor, north of an overgrown gravel road that runs east from River Road. An isolated large oak tree, possibly ornamental, was located near the scatter of artifacts. Figure 60 is a sketch map of this location that eventually came to be recognized as a portion of the Gomez House Site.

Shovel tests in a five meter interval in the vicinity of the original productive shovel tests, attempted to define the site. Soil probes were also employed in an effort to delineate the site. The soil in some of the shovel tests was loose and not hard packed as was generally the case in the survey area. The Munsell designation for the soil at this portion of the site was 10YR 3/1. The artifact content of all the shovel tests was very slight, although the type of cultural material (particularly nails) suggested some sort of structure. Most likely, this building was bulldozed down and much of the usable material carried away, because so little debris was encountered. However, a dump site could also be a viable explanation of this lack of building debris. Those artifacts recovered consisted of modern material, mixed with some amethyst glass, ironstone and wire nails that might date it to the late nineteenth to early twentieth centuries. A more thorough analysis of the artifacts from this portion of the site is presented in Chapter XI.

Across the gravel road from the oak tree and closer to River Road, a scatter of bricks, as well a very small collection of ceramics, and glass, mark what was once another structure. A portion of a water pipe located between two oak trees is also located in this area. A concentration of *Rangia cuneata* shells were found just south of the gravel road about 75 ft from River Road. In all probability, this shell is the remains of a shell driveway to a former house site. Figure 60 shows the location of this portion of the Gomez Family House Site. All of the material recovered from this area was on the surface except for one sherd of whiteware recovered in a shovel test.

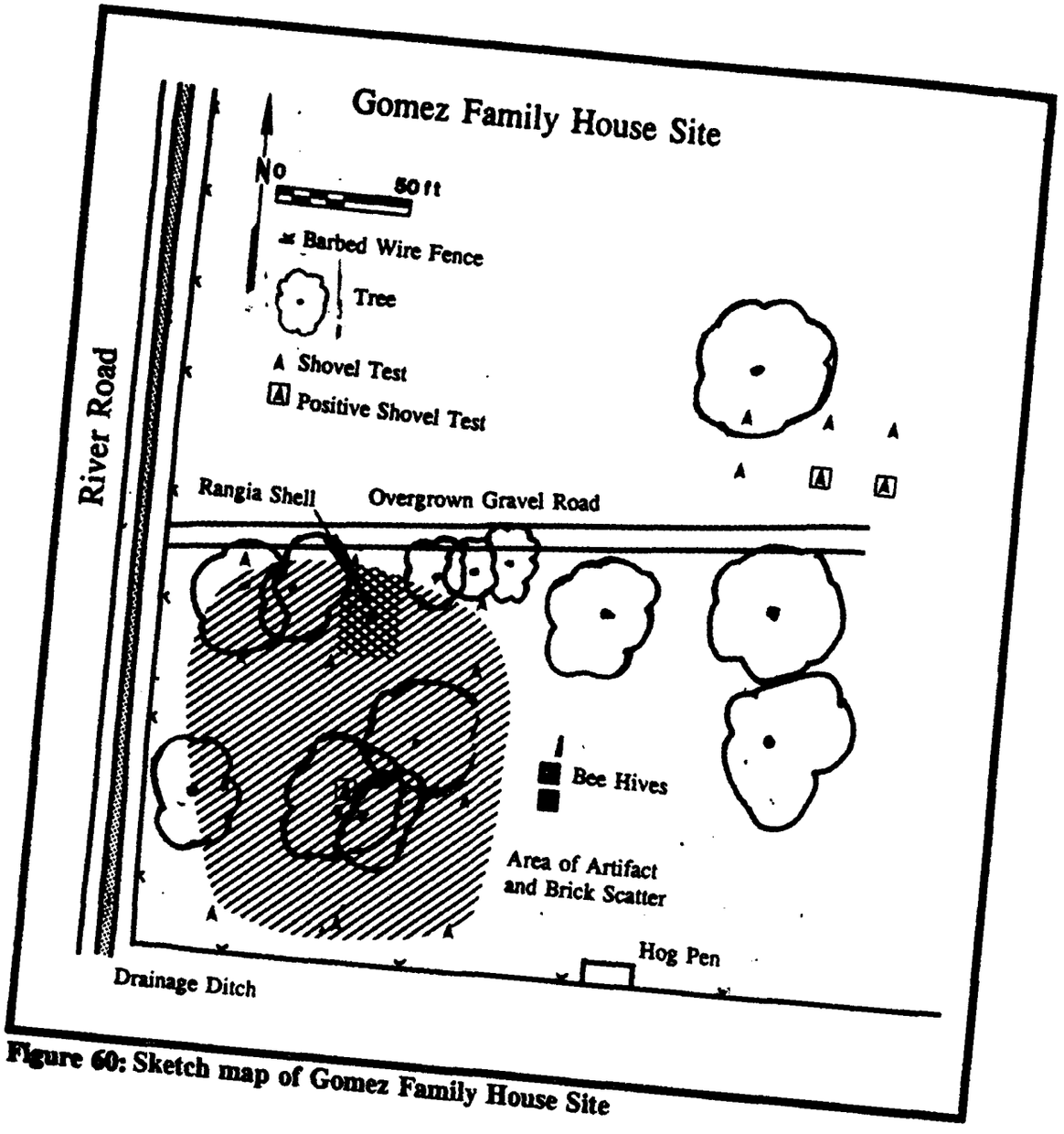

Figure 60: Sketch map of Gomez Family House Site

A local informant, Mr. J.O. McGrew, who is a long time resident in this area, said that this area was once the home of a family named Gomez. He said they farmed, trapped, and fished in this area and had a small house at this site. According to Mr. McGrew, the Gomez family abandoned the house sometime in the late 1950s or early 1960s and that most of the house was bulldozed and the material carried away. It is very possible that the material north of the gravel road was an outbuilding for the Gomez house such as a barn, but our informant was uncertain if there had been a structure at that location. Other features at this location include a collection of active bee hives and the remains of a hog pen south of the house site (see Figure 60).

Most likely, the artifacts from both portions of this location are the products of the same habitation: the Gomez family. A check of property records found no Gomez listed as a landowner. However, two structures are clearly shown in the location of this site on the 1953 Baton Rouge West 7.5' quadrangle (See Figure 41). Because both the structures are destroyed and the recent nature of associated artifacts, and due to information about the Gomez family from a local informant, this location was not reported as an archeological site.

Location of Dailey's Chapel

Field workers for this project originally noticed this location because of a possible oak and pecan tree alley that appeared to run east from River Road. Approximately 150-200 ft east of River Road, near the end of the gravel road in a pasture, a very light scatter of brick fragments was located. Approximately 75 ft north of the gravel road, a water well, now covered by sheets of corrugated metal, was found. The well consists of nothing more than a metal lined hole in the ground. It is very likely that a pump once sat atop this hole to draw water from the well. However, no evidence of a pump or platform for a pump can be found at the site. Shovel tests were placed in five meter intervals in the cardinal directions from the well for a distance of 25 m and no artifacts were recovered. The soil matrix of the shovel tests were uniformly composed of alluvium that had the Munsell designation of 10YR 3/1.

Currently, there is no reason to report this location as a site. However, on a 1953 USGS 7.5' topographical map containing portions of the project area, a structure called "Dailey's Chapel" (Figure 41) is clearly marked and would appear to be in the area of this location. Also, aerial photographs from 1941 of the project area (CQF-8A-88) available at the Cartographic Information Center of Louisiana State University shows a structure with a possible steeple in this location. Nothing remains of this structure today and it can be assumed that the material for it was hauled away from the location. Figure 61 is a sketch map of the area that would have contained Dailey Chapel and it depicts all the features described above.

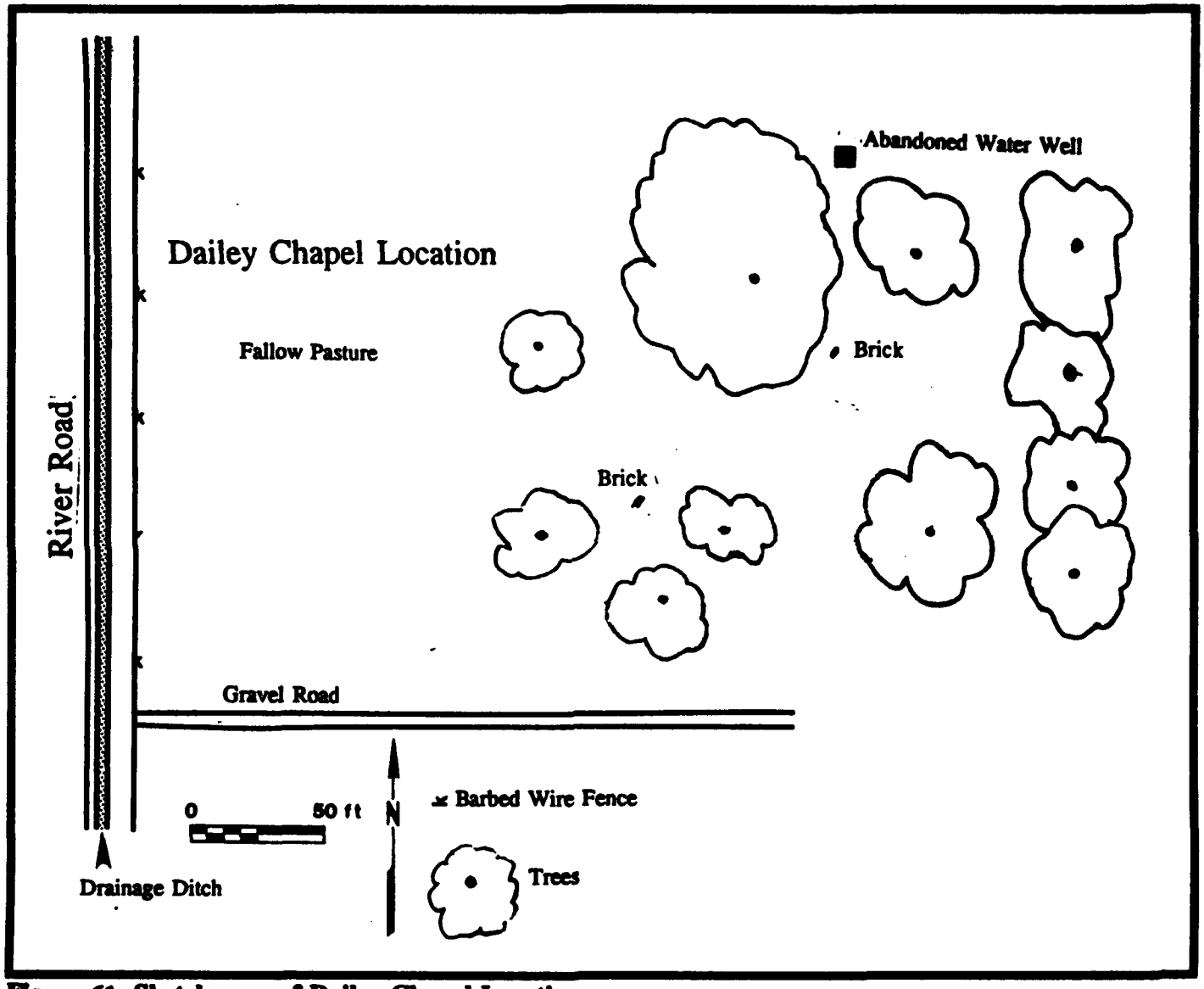

Figure 61: Sketch map of Dailey Chapel Location

16EBR57 Cottage Plantation

About 400 ft northeast of the ruins of the Cottage Plantation, field workers encountered a thick concentration of brick fragments near a gate in a barbed wire fence. This concentration measured about 50 x 35 ft (15 x 10.5 m). Shovel tests placed in the cardinal directions from this brick concentration located no other artifacts. A few fragments of modern bottle glass and a nail were found on the surface, but they are interpreted as recent refuse from traffic on the River Road rather than associated with the bricks. These bricks appear to have been purposely moved to this area for building up the elevation for passage through a fence gate during periods of heavy rain. There is no indication that this brick concentration was the remains of a structure. For example, none of the bricks are complete and there was no mortar attached to any of the fragments. Figure 62 is a sketch map of the Cottage Plantation Site and its environs which shows the location of this brick scatter and area of shovel tests.

While the survey corridor for the LSU Berm Improvement Project does not directly impact the Cottage Plantation, the southern end of the corridor is less than 1000 ft from the plantation home itself and well within the property boundaries of the plantation. The batture portion of the survey area is directly over the levee from the Cottage Plantation. Within that area, no artifacts were encountered during the survey. Additionally, no artifacts or signs of occupation were encountered on the river side of the levee opposite the plantation where a landing might have been. Despite the fact that the proposed project will have no direct impact on the Cottage Plantation, this site, previously reported as 16EBR57 in the files of the Louisiana Division of Archaeology, is easily the best documented and most significant site near the project area. It deserves further comment.

Architectural Description of Ruins at 16EBR57 - Frederick D. Conrad designed and oversaw the construction of the Cottage Plantation. Undoubtedly, Mr. Conrad was influenced by the architectural styles that he had observed in the region. The foundation is situated on a lowlying portion of the Mississippi River floodplain and probably was protected by a levee that extended up to Baton Rouge. Access to the Mississippi River, the main regional highway, was probably one of the reasons the house was built in this location.

The Cottage Plantation was built on grade with floor timbers notched into the brick support walls. Although this method of construction tends to insulate the floor, it also allows the transmission of moisture through the bricks to the timbers. This moisture might have caused some structural problems for the house and may have contributed to termite infestation. None of the floor timbers or flooring remains at the site today.

The house was square in plan with dimensions of roughly 90 X 90 ft, and had brick walls on the first floor, a wooden second floor, and an attic. The upper levels were probably constructed of wooden clapboards. Eight massive brick columns were

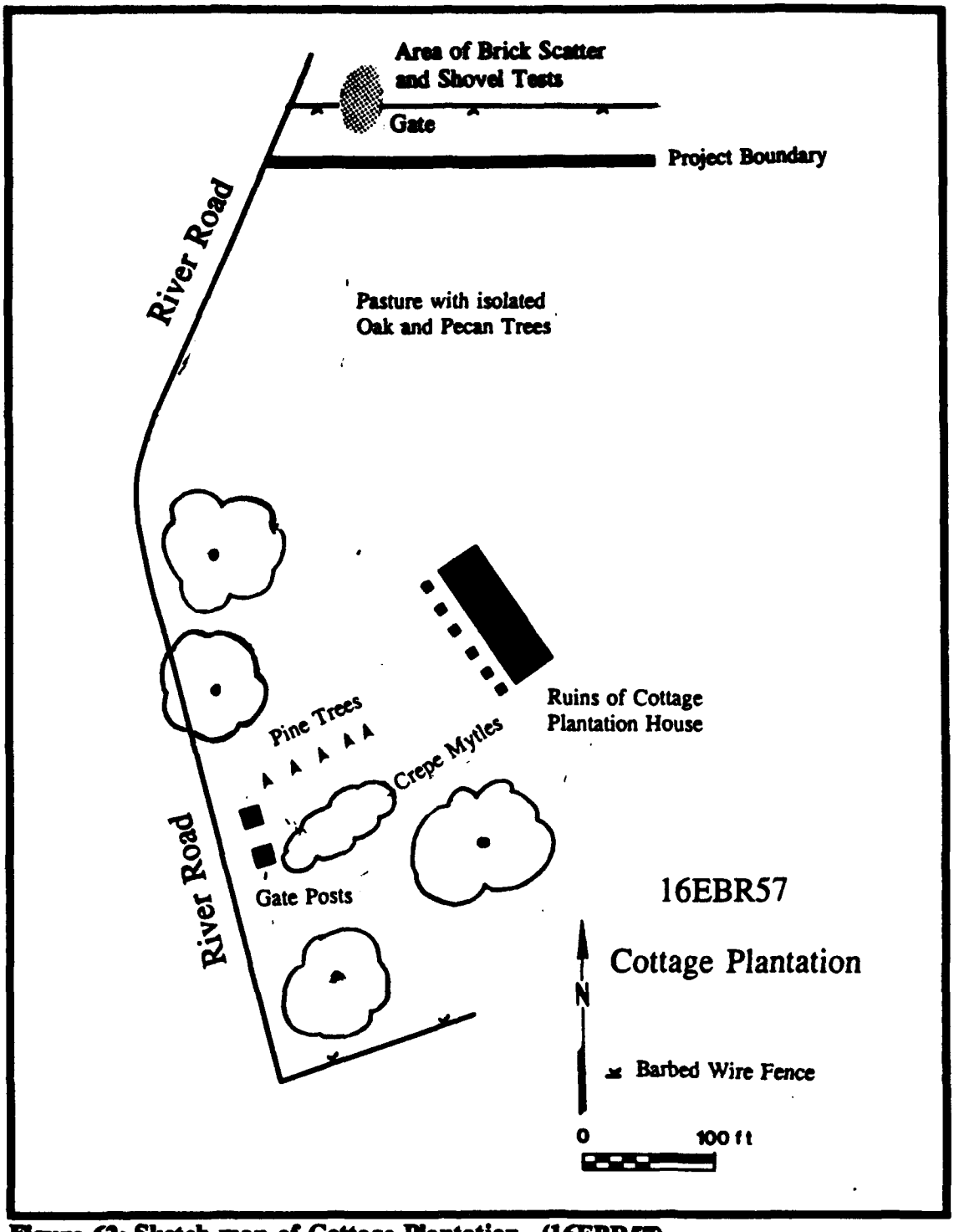

Figure 62: Sketch map of Cottage Plantation (16EBR57)

erected in front and defined the edge of a very deep gallery. The brick columns, raised on pedestals, were plastered smooth and gently tapered with a mild Doric style at the cap and base. The gallery wrapped around the front half of the sides of the house and had a simple wooden railing between the columns. These giant columns supported a straight forward cornice and parapet which had the simplest of applied moldings. Behind this parapet, a gently hipped roof enclosed a finished attic. There were originally six dormers on the roof (two in front and back and one on each side). These brought light and air into the attic. At the top of the slate roof was a platform "used for surveying the surrounding landscape" (Sunday Morning Advocate 1978).

The entry to the house was central and on the ground floor. The ground floor was formal rather than service as was the case with other antebellum great houses. The front door was perhaps the most detailed element of the rather simple overall composition. Two oval brick steps led to this door which was very wide and had a fan shaped transom above. There were sidelights flanking the door.

According to William Spratling who observed the house during its state of tattered grandeur, the beam between the door and the transom was finished with "a refined moulding; ... small fluted Doric columns at the sides of the door, and small square columns at the sides of the side-lights" (Spratling 1927:22). The detail of the door on the second floor was similar, but more modest according to Spratling. The plan of the house was very simple and identical on both main floors:

> *...ample straight through. On each side of it are two large rooms, connected with each other by panelled double doors. The door facings are all panelled, and the trims are hand turned. The doors leading to the rear gallery have curious transoms, very narrow, with little wooden bars across them, in sets of two. The walls are two feet thick, and even the interior ones are made of brick (Spratling 1927:22).*

The rooms were reported to be very large and the arranged so that most of them opened onto the galleries. This allowed the house to ventilate and take advantage of river breezes. The were four fireplaces on each floor to warm the house in the winter. Both the front and rear galleries were paved with brick. The rear gallery was supported by four columns with modest pedestals and recessed into the mass of the house rather than attached.

Mr. Conrad used the French Colonial Plantation type as his model for design. By 1820, there was an abundance of these houses along the river between New Orleans and Baton Rouge. As an antebellum architectural style, the wrap around gallery is commonly observed in the Lower Mississippi Valley and is particularly concentrated in southeastern Louisiana. The Cottage Plantation was a classic example of this type and it tended toward the Greek Revival in applied detail. In some ways it is difficult to stylistically assess homes such as the Cottage as they were built by non-architects who worked from

vernacular rather than classic models. In any case, Mr. Conrad's efforts were well done and what is left of the house appears to remain structurally sound and true.

The fire of 1960 destroyed all but the most durable brick portion of the Cottage. It is ironic that the posts of the gate to the front walk mark the site like a headstone. There is no wood remaining on the house itself. What wood survived the fire was bulldozed into piles which are still visible on the site. The trees which were planted to demark the entry have matured and are grand in appearance, although one live oak has splintered due to lightning or stress from a heavy branch. While the Cottage is lost, it is important that the remains be well documented. The techniques of construction are exposed on the skeletal remains and provide a record of antebellum construction methods. Figure 63 and 64 are photographs of the ruins of the Cottage Plantation.

The Cottage Plantation has a crepe myrtle and pine tree alley that lines both sides of an overgrown gravel driveway that once connected the plantation home to River Road. Two brick pillars, one now fallen, were placed in front of this alley. These posts are constructed of machine made bricks and probably date from some time in the twentieth century. In addition to the brick pillars, a two metal gate posts or hitching posts stand nearby marking the former entrance to the Cottage Plantation. Figures 65 through 67 show these objects associated with the gateway.

Impact to the Cottage resulting from proposed Corps of Engineer projects will be indirect to the house itself, although some of the trees around the ruins may be lost. Construction activity involving heavy earth moving equipment may create vibrations that might structurally damage the house. Because of this possibility, it is recommended that a Historic American Building Survey (HABS) be carried out on the remains of the Cottage. Although only the ruins of the Cottage Plantation exist today, these remnants have the potential to serve as an example of plantation architecture and construction techniques. Also, the Cottage was the scene of considerable antebellum social activity involving important historical figures such as Jefferson Davis, Zachary Taylor, Judah P. Benjamin and others. Furthermore, the association of the author Frances Parkinson Keyes with the Cottage during the twentieth century increase the historical significance of the site. For these reasons, the remains of the Cottage Plantation should be regarded as eligible for the National Register of Historic Places. An updated site form on the Cottage Plantation has been submitted to the Louisiana Division of Archaeology.

Figure 63: Photo showing front view of remains of Cottage Plantation (16EBR57)

Figure 64: Photo showing front view of remains of Cottage Plantation (16EBR57)

Figure 65: Photo showing remains of entrance way to Cottage Plantation (16EBR57): Standing brick pillar

Figure 66: Photo showing remains of entrance way to Cottage Plantation (16EBR57): Fallen brick pillar

Figure 67: Photo showing remains of entrance way to Cottage Plantation (16EBR57): Gate posts or hitching posts

CHAPTER XI

ANALYSIS OF HISTORIC ARTIFACTS

Methodology of Artifact Analysis

The artifacts analyzed below were all recovered from surface collections or shovel tests in the LSU Berm Improvement portion of the project area. All the material recovered were historic artifacts associated with definable historic sites. Some were sites of historic occupation, others were sites of the dumping of historic material. The locations, size, and descriptions of these sites have been reported in the preceding chapter. Also, the proveniences of the various collections were presented in Chapter X and they agree with the tabular presentation of artifacts in this chapter. All artifacts were washed, sorted, and catalogued according to standards of the Louisiana Division of Archaeology standards. Ceramics, glass, and nails are described using formal archeological classifications presented below. Other artifacts are classified using descriptive terminology.

Ceramics

A paradigmatic classification (Dunnell 1971:84) which is the product of the combination of unweighted classes of paste, glaze, and of decorative type (Yakubik 1980) is utilized to describe historic Euro-American ceramics. The advantage to this method is that it provides a more complete and flexible definition of these ceramics by its ability to handle ambiguous and transitional ceramic types. This ultimately facilitates tighter chronological control. Because decorative type is treated as an equal class relative to paste and glaze, it permits the examination of socio-economic issues concerning ceramic use (Worthy 1982; Miller and Stone 1970). This classificatory framework has proven useful during previous research both at eighteenth and nineteenth century sites in rural and urban settings.

Cream colored earthenware. In 1759, Josiah Wedgwood and Thomas Whieldon perfected the manufacture of a cream colored earthenware body. By about 1762, Wedgwood had developed creamware, a type of cream colored earthenware, which contributed to England's increasing control of the world ceramic market (Miller and Stone 1970). Creamware has a thin, refined cream colored earthenware body covered with a clear lead glaze. Wedgwood developed pearlware from creamware by 1779. Noel Hume (1969:390; 1970:128) notes that although the pearlware paste contains more flint than that of creamware, the cream colored earthenware bodies of the two are virtually identical. The primary distinction between the types is that the pearlware glaze is tinted with cobalt oxide. Thus, while creamware has a yellowish appearance, the cobalt has the effect of whitening the cream colored earthenware body of pearlware.

Unlike creamware, which is often undecorated or decorated with only molded relief patterns, pearlware received a wide variety of decorative treatments. The treatment is often hand-painted underglaze, either in blue (usually oriental motifs) or in polychrome floral and geometric patterns. Transfer-printing is also common. This technique involved engraving a plate with the desired pattern and printing it on tissue paper. The paper was laid on the vessel, transferring the pattern to the piece. Blue transfer-printed pearlware is common from the late eighteenth into the second quarter of the nineteenth century. Shades such as red, brown and green were introduced during the nineteenth century.

A variation on transfer-printing is Flow Blue. This decoration is produced by the deliberate introduction of a chlorinated vapor into the kiln, which blurred the transfer-print. Patterns on later examples tend to be more distinct than those on earlier pieces. Introduced around 1825, Flow Blue was utilized on whiteware and ironstone into the early twentieth century. Flow Purple and Flow Brown were also produced in lesser quantities (Ray 1974:69).

Annular decoration is also common on pearlware. It consists of horizontal bands of colored slips on the vessel that often are found in conjunction with engine-turned patterns. Variants of annular decoration are mocha (brown fern-like motifs) and finger-painting (zones of swirled multi-colored slips). Blue and green shell-edged pearlware also are frequently recovered. These have a molded, shell-like rim that is decorated with either blue or green hand-painting. Eighteenth century examples tend to be finely cast with individual brush strokes evident on the rim, while later sherds are less finely molded and painted. Not infrequently, the edge painting consists of only a broad band of blue or green. Nineteenth century examples sometimes exhibit a variety of fronds, garlands, and floral devices molded on the edge (Sussman 1977).

White colored earthenware. White colored earthenware was the result of the introduction of increasing amounts of cobalt into the ceramic paste during the early nineteenth century. The bodies of these ceramic vessels became thicker and coarser over time; the net effect of whitening the ceramic paste was a reduction in its plasticity. The result of all these changes distinguishes white colored earthenware from cream colored earthenware. During the first quarter and into the second quarter of the nineteenth century, this white colored earthenware body frequently was covered with a cobalt tinted glaze typical of pearlware. Ultimately, the use of cobalt additives in the glaze was reduced, and by the end of the first quarter of the nineteenth century, a white colored earthenware paste with a clear alkaline glaze was being produced. This type commonly is referred to as whiteware. Whiteware is found with all of the decorative types common to pearlware. After 1900, decaled decoration is often found on whiteware.

A similar ware popularized during the mid-nineteenth century in America and England was variously referred to as ironstone, stone china, and granite ware. This type also has a refined white colored earthenware paste. Worthy (1982:335-337) classifies

it as a white stoneware, yet states that the body is "almost vit reous." Since stonewares by definition are vitrified, this precludes the classification of ironstone as a stoneware.

It should be noted that Worthy (1982) is correct in stating that whitewares are easily distinguished from later ironstones. Unfortunately, distinctions between the two types at mid-century are less clear. While sufficient differences exist between whiteware and ironstone in terms of paste composition, permeability, body thickness, decoration, and surface color to justify their segregation, it is equally clear that these differences form a continuum between the two types, just as pearlware gradually grades into whiteware. Barber (1902:19) states that the formula for ironstone is similar to that used in all white ceramic wares, namely flint, feldspar, kaolin, and ball clay.

Ironstone was developed in England in 1850, and was produced in the United States at a slightly later date (Ramsey 1947:153). It has a hard white, and often thick and heavy ceramic body. Although not completely vitrified, it is more vitrified than whiteware. Ironstone fractures evenly and smoothly. Surface appearance is hard and smooth, usually with an opaque-looking glaze with a blue-gray cast. It is frequently undecorated, or decorated with only molded relief. Transfer-printing is not uncommon, particularly in the late nineteenth and early twentieth centuries. Decorative motifs usually consist of floral patterns, unlike the primarily scenic transfer-prints found on 1840 pearlware and whiteware. Decalcomania is also common after 1900. Like whiteware, ironstone continued in production into the twentieth century.

Yellow colored earthenware. This is an American coarse utilitarian body type. The paste consists of stoneware, not earthenware clays, but the ware is classified as an earthenware because it is not fired to vitrification. The paste ranges from soft and porous in low-fired examples to nearly vitrified pieces which have been fired at high temperatures. The paste color is buff to brownish yellow, and varies with the amounts and types of impurities in the clays and with the firing temperature. Surface treatment of the vessels varied with function. The variant known as yellowware is covered with a clear alkaline glaze. It was molded into a variety of utilitarian forms such as bowls, jelly-molds, pitchers and mugs. After 1840, it is frequently found with annular bands in white, brown and blue, as well as mocha decoration in blue or brown (Ramsey 1947:148-150). Yellowware was produced into the twentieth century.

Yellow colored earthenware also is found with a tortoiseshell brown glaze produced by mixing manganese and iron oxides into the alkaline glaze. Known as rockinghamware, the type was molded into a variety of decorative and utilitarian shapes. Manufactured between 1830-1900, the height of rockinghamware's popularity was the mid-nineteenth century.

Yellow colored earthenware sometimes was covered with an Albany slip, or a similar dense, brown-to-black matte slip glaze. This variant was more commonly known as brownware, and was most often utilized for straight-sided crocks and storage vessels.

Generally wheel-thrown, brownware was produced between ca. 1830 and 1900. Brownware is occasionally unglazed. This variant was manufactured between 1840-1875. Brownwares with alkaline and salt glazes also were produced in the south after 1860 (Ramsey 1947:144). Bristol glazes, which utilize zinc oxide as their primary fluxing agent, also are found on brownware. The Bristol glaze is opaque, off-white, and frequently exhibits pits and pinholes (Rhodes 1973:180).

Stoneware. Stoneware paste ranges in color from white-gray or buff to deep gray and brown. Stoneware is fired at between 1200-1300 degrees, and it has a smooth and stoney appearance (Rhodes 1973:22). Stoneware was first commercially produced in the United States about 1775. Use of these heavy, wheel thrown, utilitarian vessels became widespread during the nineteenth century. Just as coarse earthenwares were the primary utilitarian ceramic of the eighteenth century, so stonewares were the principal utilitarian wares of the nineteenth century.

The most common surface treatment of stoneware is salt glazing. The raw ceramic is fired until the clay matures, at which point salt is added to the firebox. The vaporized salt is then deposited on the ware, producing a thin, bright, hard glaze with an orange-peel texture (Rhodes 1973:285). Because the salt vapor usually does not adequately penetrate the interior of vessels, an Albany slip, developed in 1810, usually coats the interior of American stonewares. Salt glazed stoneware is often undecorated, or decorated with cobalt hand-painting.

Stonewares are also treated with alkaline glazes. The application of an engobe, or slip, to change the surface color of a vessel is also common, both with and without subsequent glazing. The fact that stonewares were often produced in small local potteries contributes to the large amount of variation in surface treatment.

Porcelaneous Stoneware. This is a classificatory type suggested by Worthy (1982) to describe a type that embodies the traits of both stoneware and porcelain. Also known as semi-porcelain and hotel china, it was developed in the United States after 1880 for table use. It contains both kaolin and ball clay, and is fired between 1200-1400 degrees (Worthy 1982:337). It is very white, dense, and completely vitrified, but unlike porcelain, is opaque. Although it exhibits a variety of decorative treatments, the most common is monochrome rim banding.

Porcelain. Hard paste porcelain was first manufactured by the Chinese in the eighth century A.D. (T'ang Dynasty). Chinese porcelain came into such demand that, by the eighteenth century, Oriental potters were manufacturing porcelain exclusively for export to western markets. Underglaze blue hand-painted porcelain was first available in the American Colonies during the second half of the seventeenth century. By the early nineteenth century, the quality of hand-painting declined dramatically. By the later nineteenth century, inexpensive porcelains were being mass produced for the American market by manufacturers such as Haviland and Company. Undecorated French

porcelains provided competition for American and British ironstones. Commercially successful hard paste porcelains were not manufactured in the United States until 1880.

Hard paste porcelain is completely vitrified and translucent. It is made from kaolin and petunse (feldspar, or potassium aluminum silicate), and it approaches glass in composition because of the high firing temperature (1300-1450 degrees C.). The paste tends to fuse with the feldspathic glaze during the firing process. The ware fractures conchoidally. Surface appearance is hard and smooth, and the color ranges from very white to white with a gray, blue, or green cast (Miller and Stone 1970:81: Noel Hume 1970:257-263). Porcelain can receive a variety of surface treatments, although only cobalt decoration may be applied underglaze due to the heat necessary to fire the ceramic. Hand-painting, transfer-printing, and decalcomania all are common treatments on porcelain.

Glass

Datable Manufacturing Techniques. Prior to the 19th century, the majority of glassware was hand-blown. Characteristics of hand-blown glass include the absence of mold seams and an asymmetrical vessel shape. Alternately, bottles were blown into a one piece dip-mold to form the vessel body, while the neck and shoulders were hand finished. This technique came into use during the late eighteenth century and continued to be utilized until the mid-nineteenth century.

Both hand-blown and molded bottles were held by pontil during finishing. Attached to the vessel base, pontils left characteristic scars. One variant is the blow pipe pontil. The blow pipe pontil exhibits a rough ring of glass; it is produced by utilizing the blow pipe as the pontil rod. Thus, the molten glass from the neck creates the characteristic scar on the base (Jones 1971). Bare iron, or improved pontil scars are characterized by red or black ferric oxide deposits. The snap case, which replaced the need for a pontil rod, was introduced shortly before the Civil War.

Molds to shape the shoulders, necks, and bodies of vessels came into use during the first two decades of the nineteenth century. These included the three-piece hinged mold, which had a dip body and a hinged, two-piece upper section to form the shoulders and the neck. The two-piece hinged mold was hinged at the base, and had mold seams running across the base and up the sides of the vessel. Frequently, the base seam was obliterated by the scar from the pontil used to hold the vessel while the mouth and neck were finished (Baugher-Perlin 1982:263).

Two-piece molds began to replace three-piece molds by the mid-1840s, and by the following decade the former was improved by the addition of cup bottoms and post bottoms on the base (Haskell 1981:62; Lorraine 1968:40). Cup bottoms are characterized by a mold seam which encircles the bottom of the vessel body. A post bottom has a

circular seam on the base itself, and the side seams extend over the base edge to meet the base seam.

During the eighteenth and nineteenth centuries, bottle lips were cut off with shears while the glass was still soft. These sheared lips are characterized by an abraded, plain, cylindrical top. Frequently a bead of glass was laid on the neck beneath the lip of the vessel. By the mid-nineteenth century, bottle lip finishing techniques were improved. The tooled lip was one such method. The lipping tool consisted of a central piece placed within the bottle neck and an external arm, which, when rotated, shaped an even lip from the soft glass applied to the mouth of the vessel. Use of this technique tended to obliterate the neck seams of the vessel as a consequence of reheating and finishing.

Michael Owens patented a fully automatic bottle machine in 1903. This eliminated all hand labor from bottle manufacture. Suction was used to draw the molten glass into the mold, and the resulting bottles have ring seams around the base and side seams which extend over the lip. By the third decade of the nineteenth century, the vast majority of bottles were produced by this method (Baugher-Perlin 1982:261).

Datable Glass Colors. In addition to manufacturing techniques which produce datable attributes, certain glass colors provide some chronological information. For example, "opaque black" glass, which was utilized primarily for liquor bottles, was common throughout the eighteenth century and until the late nineteenth century. The glass is actually dark green, but the thickness of the vessel gives the impression that the glass is opaque black in reflecting light (Jones 1971:11).

Also, most clear glass prior to the Civil War was lead crystal. The introduction of improved lime glass in 1864 provided an inexpensive alternative (Haskell 1981:28). Consequently, clear glass is more common from the second half of the nineteenth century.

Finally, manganese oxide came into wider use as a decolorizing agent in the final third of the nineteenth century. Use of this oxide to clarify glass continued through World War I. Glass treated with manganese oxide tends to become amethyst colored when exposed to sunlight (Toulouse 1969:534).

Nails

Generally, nails are only broadly datable. Prior to 1790, all nails were hand wrought. A variety of different wrought nails were manufactured. These can be defined by the shape of their heads (i.e., rose-headed, T-headed, L-headed, and headless).

Between 1790 and the 1830s, early machine cut square nails came into general use. Machine cut square nails with wrought heads were manufactured between about 1790 and 1815, after which square cut nails with machine made heads appeared. The later continued to be manufactured until the 1830s and had somewhat irregular heads and a "wasted," rounded shank under the head. Square cut nails with machined heads that lacked the "wasting" characteristic of the above appeared about 1820 (Nelson 1963; Noel Hume 1970:252-254).

Additional nail attributes which provide chronological information include cut marks and the direction of the metal fibers in the nail shaft. Prior to 1820, the cutting of the nail shafts produced burrs on diagonal corners of the nail shaft. After this date, the burrs appear on adjacent nail corners. In addition, prior to 1830, the metal fibers of the nail run horizontally to the shaft, later, they run vertically to the shaft. Wire nails were introduced in 1850, and they began to replace square cut nails by the third quarter of the nineteenth century (Nelson 1963; Noel Hume 1970:252-254).

Artifact Analysis by Location in Project Area

16EBR72 Laurel Plantation

As noted in Chapter X, field personnel found a small scatter of artifacts during the original survey near the gravel road that runs off River Road through the Laurel Plantation. One fragment of a pearlware plate, two bones fragments, and one brick fragment were collected from this area.

Another portion of the site, however, in an area near and between two large oak trees was the richest at Laurel Plantation in terms of artifacts. Two hundred twenty-eight of the 266 objects collected from the site (85.7%) were recovered from the surface (Table I), the remainder came from shovel tests in the vicinity. Artifacts included ceramics (19.5%), glass 26.7%), and architectural debris (33.5%). Other material included a scythe blade, a tack, fence staples, wire, stag, bone, oyster shell, coal, and unidentifiable metal. The artifacts probably represent domestic refuse from former occupants of the nearby residence. The nearest standing building is Structure 5.

Mean Ceramic Dating yielded a date of 1861.5 (n=43) for the collection. Date ranges for determining this mean date are 1810-1920. Ceramic artifacts range from early nineteenth century pearlware to late nineteenth/early twentieth century ironstone and porcelain. Diagnostic attributes of glass artifacts (black glass, amethyst glass, clear glass, bare iron pontil) suggest a mid-nineteenth to early twentieth century date for the site.

Analysis of ceramic price levels was somewhat more successful than was the case at 16EBR73 and 16EBR74. Seventy-one percent of the collection was in the highest

TABLE I

ARTIFACTS FROM 16EBR72
PORTION OF LAUREL PLANTATION

ARTIFACTS	SHOVEL TESTS	SURFACE COLLECTION	BETWEEN LIVE OAKS	TOTAL
Pearlware	1	1		2
Blue transfer-printed pearlware		5		5
Blue hand-painted pearlware	1			1
Whiteware		7		7
Blue transfer-printed whiteware		3		3
Polychrome hand-painted whiteware	1			1
Annular whiteware		1		1
Ironstone		22		22
Porcelain	1	3		4
Brown salt glazed stoneware albany slip interior		1		1
Burnt sherd	3	1		4
Art pottery stoneware		1		1
Pane glass		11		11
Amethyst glass		3		3
Black glass	1	1		2
Black bottle base, bare iron pontil	1			1
Brown glass		9		9

Table I continued

TABLE I (CONTINUED)

ARTIFACTS FROM 16EBR72
PORTION OF LAUREL PLANTATION

ARTIFACTS	SHOVEL TESTS	SURFACE COLLECTION	BETWEEN LIVE OAKS	TOTAL
Brown flask glass		1		1
Clear glass	5	29		34
Green glass		6		6
Light green glass		14		14
Light green paneled flask glass		1		1
Milk glass				1
Modern brown glass				1
Olive glass				8
Tin can key		1		1
Shotgun cartridge				1
Slate				1
Mortar	1			1
Piece of Cinder block				1
Ceramic drain pipe		1		1
Plastic	1			4
Scythe blade				1
Wire nail	11	19	2	32
Square nail	2	29		31
Miscellaneous nail	1	11		12
Tack		1		1
Spike	1			1
Fence staple				2

Table I continued

TABLE I (CONTINUED)

ARTIFACTS FROM 16EBR72
PORTION OF LAUREL PLANTATION

ARTIFACTS	SHOVEL TESTS	SURFACE COLLECTION	BETWEEN LIVE OAKS	TOTAL
Wire	1	1		2
Miscellaneous metal	5	4		9
Slag		5		5
Bone		5	1	6
Oyster	1	6		7
Coal		3		3
TOTAL	38	225	3	266

price level, while 21% was in the lowest. The results may have been skewed by the high relative frequenty (42.3%) of ironstone in the ceramic collection.

16EBR73 LSU Field/River Road Dump

Artifacts collected from the surface at 16EBR73 are listed in Table II. The majority of the artifacts consisted of ceramics and bottle glass, although some architectural materials (pane glass, brick, ceramic tile, sanitary porcelain, and nails) were also recovered. Industrial debris, including machinery parts, a glass insulator, and chain links, was also collected. The presence of both industrial and domestic material, and the limited amount of architectural debris collected (8% of the assemblage) suggests that this may have been a dump rather than domestic refuse associated with a habitation.

Mean Ceramic Dating (South 1977) was undertaken for the collection. The resulting date was 1893.71 (n=58). The range of dates employed for establishing this mean are 1860 to 1920. Few of the glass fragments had attributes diagnostic for dating purposes, but one paneled flask sherd dated to the late nineteenth century, while three bottle necks post dated 1903 because they were produced by a fully automated process (Baugher-Perlin 1982).

Economic price scaling was attempted on this collection. The technique as presented by Miller and Stone (1970) was modified in that ironstone was included in the uppermost price level. Support for this modification is Miller's judgement that "prices for this...type are often equal to prices for transfer-printed vessels of the same form and size." Porcelain was excluded from this analysis because the production of inexpensive porcelains in the late nineteenth century makes categorization of the ware problematic (see Castille et al. 1986:7/9-7/17). Although Castille et al. (1982, 1986) have advocated inclusion of lead glazed utilitarian earthenwares and stonewares at a level below that of Miller's lowest price level (undecorated wares excluding ironstone), these types also were excluded. While it is likely that these types were in fact less expensive, they may not be directly comparable to Miller's categories on functional grounds. Stonewares and utilitarian earthenwares were utilized primarily for food storage and preparation, but the majority of transfer-printed, hand-painted, minimally decorated, and undecorated wares used in the analysis as presented by Miller and Stone (1970) represent tableware. Thus, utilitarian wares are not truly status indicators; assemblages from upper status occupations would be expected to include stoneware and earthenware storage and food preparation vessels, perhaps in even greater quantities than low status occupations.

The results demonstrate the limited utility of this technique for late nineteenth century collections which consist primarily of ironstone. One hundred percent of the ceramics utilized for this analysis were in the highest priced category. It should be noted that even had utilitarian stonewares and earthenwares been included in this analysis, these would have only supplied a few types on the lowest end of the scale, and the middle categories still would have been unrepresented.

TABLE II

ARTIFACTS FROM 16EBR73
LSU FIELD/RIVER ROAD DUMP

ARTIFACTS	TOTAL
Ironstone	34
Decaled ironstone	3
Flow blue ironstone	1
Porcelain	1
Porcelaneous stoneware	2
Banded porcelaneous stoneware	1
Blue glazed yelloware	2
Brownware	1
Brownware, Bristol glaze	15
Brownware, grey exterior slip and salt glaze, albany slip interior	4
Grey stoneware, clear exterior glaze, albany slip interior	1
Pane glass	1
Brown glass	1
Brown bottle neck, auto bottle machine	1
Clear glass	4
Clear pressed glass	1
Clear bottle neck, auto bottle machine	2
Clear paneled flask glass, post base, 2 piece mold	1
Light green glass	2
Milk glass jar	2
Modern clear glass	1
Brick	3

Table II continued

TABLE II (CONTINUED)

ARTIFACTS FROM 16EBR73
LSU FIELD/RIVER ROAD DUMP

ARTIFACTS	TOTAL
Ceramic tile	1
Sanitary porcelain	1
Glass insulator	1
Chain link	1
Chain link on metal stake	1
Metal ring	1
Metal plate	1
Machinery parts	5
Wire nail	2
Metal hook	1
Bone	1
TOTAL	100

The results are consistent with Miller and Stone's (1970) observation that "from the mid-nineteenth century, there appears to be a weaker relationship between the final cost of the vessels and their decoration." Clearly, additional research must be undertaken to definitely establish the relative costs of ironstone, porcelain, and porcelaneous stoneware and of decorative techniques such as decalcomania.

16EBR74, The River Road Dump

Artifacts collected from 16EBR74 are presented in Table III. These artifacts all had surface proveniences and their locations on either side of a drainage ditch cut through the site are noted in the table. The majority of the collection (63%) consisted of ceramics. Pane and bottle glass also were collected, including the majority of a soda/mineral water bottle embossed with the inscription "Eagle Bottling Co, Plaquemines, LA." Brick, chain link, a spike, a lead weight, and bone also were recovered. Because architectural debris represented less than 6% of the assemblage, it is likely that this is dumped refuse rather than domestic debris from a nearby habitation.

Mean Ceramic Dating was undertaken for the collection, and the resulting date was 1883.3 (n=41). The range of dates used for establishing this date was 1830 to 1900. Similarly, the soda/mineral water bottle was manufactured in a two piece mold, and thus dates to the second half of the nineteenth century. None of the other material was diagnostic for the purposes of dating.

Ceramic price level scaling was also attempted for the ceramic tablewares in this collection. As was the case with ceramic assemblage from 16EBR73, the collection consisted almost exclusively of upper price level ceramics (97.5%). The remaining 2.5% (one sherd) was in the lowest category, while no middle level ceramics were represented. Again, this indicates that this technique has little utility for late nineteenth century collections.

Gomez Family House Site

Artifacts from the portion of the Gomez Family House Site north of the overgrown gravel road are listed in Table IV. Because only eight sherds of ironstone were collected from this site, Mean Ceramic Dating was not undertaken. However, the presence of ironstone, amethyst glass, and wire nails indicate that the site dates to the late nineteenth/early twentieth century. Interpretation of this site is hindered by the small size of the collection (n=43). Architectural debris (brick, mortar, asbestos tile, pane glass, and nails) constituted 25.6% of the assemblage. This may suggest that a structure was formerly located in the vicinity. However, it is equally likely that this material was dumped here. The presence of asbestos and the wire nails suggest that this material was not particularly old.

TABLE III

ARTIFACTS FROM 16EBR74
RIVER ROAD DUMP

ARTIFACTS	ARTIFACT SCATTER	NORTH OF DITCH	SOUTH OF DITCH	TOTAL
Whiteware		1		1
Blue transfer-printed whiteware		1		1
Ironstone	8	13	16	37
Blue transfer-printed ironstone			1	1
Porcelain	1	4		5
Grey salt glazed stoneware, albany interior	1			1
Pane glass		2		2
Blue glass	1			1
Clear glass		1	5	6
Clear pressed glass	1	1		2
Light green glass		4		4
Light green soda/mineral water glass	1			1
Olive glass		4		4
Opaque green glass		1		1
Brick	1			1
Chain link		1		1
Spike			1	1
Lead weight		1		1
Bone		2		2
TOTAL	14	36	23	73

TABLE IV

ARTIFACTS FROM 16EBR72
GOMEZ HOUSE SITE

ARTIFACTS	SURFACE	SHOVEL TEST	TOTAL
Ironstone	1	7	8
Pane glass		1	1
Amethyst glass		4	4
Light green glass	1		1
Light green soda bottle glass		1	1
Modern clear glass		4	4
Modern brown glass	1		1
Olive glass	4		4
Brick	1		1
Mortar		1	1
Asbestos tile		2	2
Metal ring	1		1
Fence staple	1		1
Wire nail	1	4	5
Miscellaneous nail		1	1
Bone	3		3
Coal	3		3
Wood fragment		1	1
TOTAL	17	26	43

One rim fragment of an ironstone plate and one small sherd of clear glass were collected from the portion of the site associated with a *rangia* shell driveway and water pipe. This was reported to be the actual home site of the Gomez family.

16EBR57 Cottage Plantation

Two small shards of modern clear (window ?) glass and one rusted unidentifiable nail were collected from surface among the brick fragments that are located in the northern portion of the Cottage Plantation Site. This material was so isolated and in a setting of such disturbance, it was impossible to assign any affiliation to these artifacts or the area in which they were found.

CHAPTER XII

SUMMARY AND RECOMMENDATIONS

There are at least six occupied standing structures within the LSU Berm Improvement corridor that will be impacted by construction. Four houses are near the intersection of Brightside Road with River Road. Other structures, including a church, are near the intersection of Trinity Lane and River Road.

In addition to the occupied structures, the remains of eight locations of human activity were encountered during a survey for cultural resources in portions of the Arlington Revetment and the LSU Berm Improvement Items where the U.S. Army Corps of Engineers has scheduled construction activity. All of the locations were situated in or near the area of the LSU Berm. No cultural resources were found in the batture portion of the survey area where the revetment work has already been done or will be done in the future.

Of the eight locations, three were newly reported archeological sites and one was a previously reported site. The three new sites are the Laurel Plantation (16EBR72); the LSU Field - River Road Dump (16EBR73); and the River Road Dump (16EBR74). The Laurel Plantation site was considered potentially eligible for inclusion in the National Register of Historic Places based on the possibilities for future historic archeological research. The Laurel Plantation site is also representative of a Mississippi River plantation in the late nineteenth century and has several standing structures that are architecturally typical of this type of agricultural settlement. Sites 16EBR73 and 16EBR74 were not considered eligible for the National Register.

The previously reported site near (but not in) the project area is the ruins of the Cottage Plantation (16EBR57). This site may be affected by the construction activity. Although in ruins, the remains of the Cottage are unique enough to warrant National Register status because of its architectural significance. Also, the occasional gathering of luminaries in Southern antebellum society at the Cottage is further cause for the site to assume such status. It is recommended that the condition of the Cottage Plantation be monitored and that the site receive some sort of formal recognition of what it once was, possibly through a Historic American Building Survey (HABS).

In addition to the Laurel and Cottage Plantations, three other plantations were located in the vicinity of the project area: Gartness, Arlington, and Hope Estate. The structures associated with Gartness were on what is now the central campus of Louisiana State University. They were razed for construction of the campus, but have been reported as an archeological site (16EBR39) to the Louisiana Division of Archaeology. The buildings connected with Arlington and Hope Estate Plantations were destroyed by bank erosion of the Mississippi River in the late nineteenth or early twentieth century. The portions of the project area that was once affiliated with all three of these plantations

would have been cultivated fields when those plantations were still going concerns. Also, three house sites (now destroyed), and the location of a former chapel were investigated.

Besides the cultural resources survey, geomorphological investigations were conducted on the batture side of the project area. This study was an attempt to determine if the area has experienced noticeable deposition and, if so, the rate of that deposition. Topographical elevations of two transects that ran perpendicular to the current levee in the project area indicated that the batture has indeed experienced aggradation.

Soil cores were taken at various locations in both of these transects in an effort to define stratigraphy and find a soil horizon above which river deposition had occurred. That exercise proved inconclusive. Chemical analyses were then performed on the cores in an effort to see if concentrations of chemicals associated with upstream industrial activity could serve as chronological horizon markers in the core samples. This methodology also proved inadequate to show at what rate the deposition has occurred. A completely new technique, or refinement of the chemical analysis might yet provide some data on deposition along the Mississippi River. Such knowledge could then be used to determine at what depths cultural resources might be located on or near the current banks of the river.

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APPENDIX A

Brief descriptions of the soil horizons of cores collected in the study area are listed as follows:

CORE FT-1

A 0 to 14 inches (0 to 35 cm), dark brown (10YR3/3) very fine sandy loam,

Bg 14 to 40 inches (35 to 100 cm), dark brown (10YR 4/3) very fine sandy loam with common, fine, distinct dark grayish brown (10YR 4/2) mottles

Cg1 40 to 50 inches (100 to 125 cm), dark brown (10YR 3/3) very fine sandy loam with common, fine, distinct dark grayish brown (10YR 4/2) mottles

Cg2 50 to 63 inches (125 to 160 cm), very dark grayish-brown (10YR 3/2) clay with common, fine, distinct dark grayish brown (10YR 4/2) mottles

Cg3 63 to 75 inches (160 to 190 cm), dark brown (10YR 4/3) silt loam to very fine sandy loam with common, fine, distinct dark grayish brown (10YR 4/2) mottles

Cg4 75 to 90 inches (190 to 230 cm), very dark grayish-brown (10YR 3/2) clay with common, fine, distinct dark grayish brown (10YR 4/2) mottles

Cg5 90 to 110 inches (230 to 280 cm), dark brown (10YR 4/3) clay to silt loam with common, fine, distinct dark grayish brown (10YR 4/2) mottles

Cg6 110 to 128 inches (280 to 325 cm), very dark grayish-brown (10YR 3/2)

Cg7 128 to 132 inches (325 to 335 cm), light brownish gray (10YR 6/2) loamy sand with common, fine, distinct dark grayish brown (10YR 4/2) mottles

Cg8 132 to 199 inches (335 to 505 cm), very dark grayish-brown (10YR 3/2 and 3/1) clay with light grayish brown (10 YR 6/2) thin sand stringers

Cg9 199 to 207 inches (505 to 525 cm), brown (10YR 5/3) loamy sand with common, medium, distinct greenish gray (5GY 4/1) mottles

Cg10 207 to 226 inches (525 to 575 cm), greenish gray (5GY 4/1) sandy clay loam with dark brown (10YR 4/3) mottles

SAMPLES COLLECTED FOR TOTAL ELEMENTAL ANALYSIS AT THE FOLLOWING DEPTHS:

25 cm, 50 cm, 75 cm, 100 cm, 150 cm, 175 cm, 200 cm, 250 cm, 300 cm, 350 cm, 400 cm, 500 cm

CORE FT-2

A1 0 to 3 inches (0 to 8 cm), dark brown (10YR 3/3) silt loam with common, medium, distinct dark yellowish brown (10YR 4/6) and very dark gray (10YR 3/1) mottles

Bg 3 to 16 inches (8 to 40 cm), very dark grayish brown (10YR 3/2) silty clay loam with common, fine, faint, dark yellowish brown (10YR 4/6) and brown (10YR 5/3) mottles in sand lenses

BCg1 16 to 35 inches (40 to 90 cm), dark brown (10YR 3/3) silty clay loam with few, fine, faint, dark yellowish-brown (10YR 4/4) and dark gray (10YR 4/1) mottles

Cg2 35 to 37 inches (90 to 95 cm), dark brown (10YR 4/3) clay loam with common, medium, distinct dark brown (10YR 2/2) mottles

Cg3 37 to 93 inches (90 to 235 cm), dark brown (10YR 3/3) and very dark grayish brown (10YR 3/2) clay loam and silty clay loam

Cg4 93 to 98 inches (235 to 250 cm), dark brown (10YR 3/3) fine sandy loam with common, medium, distinct gray (10YR 5/1) and dark brown (7.5 YR 3/4) mottles

Cg5 98 to 110 inches (250 to 280 cm), dark brown (10YR 3/3) silty clay loam to loam with common, medium, distinct dark brown (7.5 YR 3/4) mottles

Cg6 110 to 128 inches (280 to 325 cm), dark brown (10YR 3/3) silty clay loam with dusky red (2.5 YR 3/2) coatings along peds and root traces

Cg7 128 to 134 inches (325 to 340 cm), dark brown (10YR 3/3) fine sandy loam with gray (10YR 5/1) colors along roots

Cg8 134 to 148 inches (340 to 375 cm), very dark grayish brown (10YR 3/2) and very dark gray (10YR 3/1) clay loam with dusky red (2.5 YR 3/2) coatings along peds and root traces

Cg9 148 to 150 inches (375 to 380 cm), dark brown (10YR 4/3) fine sandy loam with gray (10YR 5/1) colors along roots

Cg10 150 to 167 inches (380 to 425 cm), very dark grayish brown (10YR 3/2) and very dark gray (10YR 3/1) clay loam with dusky red (2.5 YR 3/2) coatings along peds and root traces

Cg11 167 to 185 inches (425 to 470 cm), gray (10YR 5/1) clay loam with dark brown (10YR 4/3) and dark yellowish brown (10YR 4/6) sand lamellae and dusky red (2.5 YR 3/2) coatings along peds and root traces

Cg12 185 to 191 inches (470 to 485 cm), greenish gray (5GY 4/1) clay loam with few, fine, faint dark yellowish-brown (10YR 4/4) mottles

Cg13 191 to 207 inches (485 to 525 cm), gray (10YR 5/1) sandy clay loam with few, fine, faint dark yellowish-brown (10YR 4/4 and 4/6) mottles

Cg14 207 to 209 inches (525 to 530 cm), brown (10YR 5/3) fine sandy loam with common, medium, distinct gray (10YR 5/1) mottles and colors along roots and extensive dark reddish brown (5YR 3/4) iron stains

Cg15 209 to 224 inches (530 to 570 cm), gray (10YR 5/1) loam with common, medium, distinct dark brown (7.5 YR 3/4) mottles and brown (10YR 5/3) sand lamellae with few, fine, faint dark yellowish-brown (10YR 4/6) mottles and stains

CORE FT-2 (cont.)

Cg16 224 to 228 inches (570 to 580 cm), gray (10YR 5/1) fine sandy loam with few, fine, faint dark yellowish-brown (10YR 4/4 and 4/6) mottles

Cg17 228 to 236 inches (580 to 600 cm), gray (10YR 5/1) loam with brown (10YR 5/3) sand lamellae with few, fine, faint dark yellowish-brown (10YR 4/6) mottles and stains

Cg18 236 to 248 inches (600 to 630 cm), dark yellowish-brown (10YR 4/4) fine sandy loam with gray (10YR 5/1) colors along roots

Cg19 248 to 254 inches (630 to 645 cm), gray (10YR 5/1) fine sandy loam with brown (10YR 5/3) sand lamellae with few, fine, faint dark yellowish-brown (10YR 4/4 and 4/6) mottles and stains

SAMPLES COLLECTED FOR TOTAL ELEMENTAL ANALYSIS AT THE FOLLOWING DEPTHS:

25 cm, 50 cm, 75 cm, 100 cm, 150 cm, 175 cm, 200 cm, 250 cm, 300 cm, 350 cm, 400 cm, 500 cm

CORE CP-1

A1 0 to 3 inches (0 to 7 cm), brown (10YR 5/3) fine loamy sand with common, medium, distinct very yellowish brown (10YR 5/6) mottles

A2 3 to 9 inches (7 to 23 cm), dark brown (10YR 4/3) fine sandy loam with common, medium, distinct dark yellowish brown (10YR 4/6) and pale brown (10YR 6/3) lamellae and mottles

Bw 9 to 28 inches (23 to 70 in), very dark grayish brown (10YR 3/2) loam with common, medium, distinct light gray (10YR 7/2) and yellowish brown (10YR 5/8) mottles, and black (10YR 2/1) coatings

Cg1 28 to 32 inches (70 to 80 cm), dark brown (10YR 4/3) fine sandy loam with common, medium, distinct light brownish gray (10YR 6/2) and dark yellowish brown (10YR 4/6) mottles, and black (10YR 2/1) coatings

Cg2 32 to 53 inches (80 to 135 cm), dark grayish brown (10YR 4/2) and gray (10YR 5/1) fine sandy loam granular

Cg3 53 to 79 inches (135 to 200 cm), dark grayish brown (10YR 4/2) loam and sandy loam with common, medium, distinct gray (10YR 5/1) mottles

Cg4 79 to 94 inches (200 to 240 cm), gray (10YR 5/1) and brown (10YR 5/3) silty clay loam with common, medium, distinct dark brown (7.5YR 3/4) and black (N/2) mottles and coatings

Cg5 94 to 102 inches (240 to 260 cm), gray (10YR 5/1) fine sandy loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg6 102 to 126 inches (260 to 320 cm), dark gray (10YR 4/1) clay loam with very dark brown (10YR 2/2), black (N/2), dark yellowish brown (10YR 4/6), and dark brown (7.5YR 3/4) coatings and rhizoliths

Cg7 126 to 138 inches (320 to 350 cm), dark brown (10YR 4/3) loam with common, medium distinct gray (10YR 5/1) mottles, brown (10YR 5/3) sand laminations, and very dark gray (10YR 3/1) clay laminations

Cg8 138 to 144 inches (350 to 365 cm), gray (10YR 5/1) clay loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg9 144 to 150 inches (365 to 380 cm), gray (10YR 5/1) loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg10 150 to 157 inches (380 to 400 cm), gray (10YR 5/1) clay loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles and with brown (10YR 5/3) sand laminations

Cg11 158 to 181 inches (400 to 460 cm), gray (10YR 5/1) sandy clay loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg12 181 to 207 inches (460 to 525 cm), gray (10YR 5/1) fine sandy loam with common, medium, distinct dark yellowish brown (10YR 4/4 and 10YR 4/6) mottles

Cg13 207 to 211 inches (525 to 535 cm), dark grayish brown (10YR 4/2) silt loam with common, medium, distinct dark yellowish brown (10YR 4/4 and 10YR 4/6) mottles

Cg14 211 to 215 inches (535 to 545 cm), gray (10YR 5/1) fine sandy loam with common, medium, distinct dark yellowish brown (10YR 4/4 and 10YR 4/6) mottles

CORE CP-1 (cont.)

Cg15 215 to 222 inches (545 to 565 cm), gray (10YR 5/1) clay loam with common, medium, distinct dark yellowish brown (10YR 4/4 and 10YR 4/6) and black (10YR 2/1) mottles and coatings

Cg16 222 to 232 inches (565 to 590 cm), dark gray (5Y 4/1) clay loam with very dark grayish brown (10YR 3/2) along rhizoliths

SAMPLES COLLECTED FOR TOTAL ELEMENTAL ANALYSIS AT THE FOLLOWING DEPTHS:

25 cm, 50 cm, 75 cm, 100 cm, 150 cm, 175 cm, 200 cm, 250 cm, 300 cm, 350 cm, 400 cm, 500 cm

CORE CP-2

A 0 to 6 inches (0 to 15 cm), light gray (10YR 7/2) silt loam with common, medium, distinct very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 4/6) mottles

Bg 6 to 30 inches (15 to 75 cm), dark brown (10YR 4/3) silt loam with clay and sand laminations with common, medium, distinct light gray (10YR 7/2) and gray (10YR 6/1) lamellae and mottles

Cg1 30 to 61 inches (75 to 155 cm), dark grayish brown (10YR 4/2) fine sandy loam

Cg2 61 to 81 inches (155 to 205 cm), dark gray (10YR 4/1) silty clay loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles, root traces

Cg3 81 to 87 inches (205 to 220 cm), dark gray (10YR 4/1) fine sandy loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg4 87 to 96 inches (220 to 245 cm), gray (10YR 5/1) clay loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg5 96 to 112 inches (245 to 285 cm), very dark grayish brown (10YR 3/2) silty clay loam with common, medium, distinct pinkish gray (7.5YR 7/2) mottles

Cg6 112 to 120 inches (285 to 305 cm), dark brown (10YR 3/3) fine sandy loam with few, fine, faint dark yellowish brown (10YR 3/4) mottles

Cg7 120 to 150 inches (305 to 380 cm), very dark grayish brown (10YR 3/2) clay loam to silt loam with common, medium, distinct dark gray (5Y 4/1) and dark yellowish brown (10YR 3/4) mottles and dark reddish brown (2.5YR 3/4) along root traces

Cg8 150 to 154 inches (380 to 390 cm), gray (10YR 5/1) fine sandy loam with common, medium, distinct yellowish brown (10YR 5/6) mottles

Cg9 154 to 161 inches (390 to 410 cm), very dark gray (10YR 3/1) silt loam with common, medium, distinct yellowish brown (10YR 5/6) mottles

Cg10 161 to 173 inches (410 to 440 cm), greenish gray (5GY 4/1) clay

SAMPLES COLLECTED FOR TOTAL ELEMENTAL ANALYSIS AT THE FOLLOWING DEPTHS:

25 cm, 50 cm, 75 cm, 100 cm, 150 cm, 175 cm, 200 cm, 250 cm, 300 cm

CORE CP-3

Ap 0 to 9 inches (0 to 22 cm), very dark grayish brown (10YR 3/2) silt loam with dark yellowish brown (10YR 4/6) mottles

Bg 9 to 30 inches (22 to 75 cm), dark gray (10YR 4/1) clay loam with common, medium, distinct yellowish brown (10YR 5/8) mottles

Cg1 30 to 41 inches (75 to 105 cm), dark gray (10YR 4/1) silty clay loam with common, medium, distinct dark yellowish brown (10YR 4/6 and 4/4) mottles

Cg2 41 to 51 inches (105 to 130 cm), gray (5Y 5/1) loam with common, medium, distinct yellowish brown (10YR 5/6) mottles

Cg3 51 to 79 inches (130 to 200 cm), gray (10YR 5/1) silt loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg4 79 to 81 inches (200 to 205 cm), dark grayish brown (10YR 4/2) loam with common, medium, distinct yellowish brown (10YR 5/6) mottles

Cg5 81 to 96 inches (205 to 245 cm), dark grayish brown (10YR 4/2) silty clay loam with common, medium, distinct yellowish brown (10YR 5/6) mottles, reddish brown (5YR 4/4) mottles and black (N/2) concretions

Cg6 96 to 100 inches (245 to 255 cm), dark grayish brown (10YR 4/2) fine sandy loam with common, medium, distinct yellowish brown (10YR 5/6) mottles, reddish brown (5YR 4/4) mottles and black (N/2) concretions

Cg7 100 to 104 inches (255 to 265 cm), dark gray (10YR 4/1) loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

Cg8 104 to 132 inches (265 to 335 cm), gray (5Y 5/1) fine sandy loam with common, medium, distinct dark yellowish brown (10YR 4/4) mottles

SAMPLES COLLECTED FOR TOTAL ELEMENTAL ANALYSIS AT THE FOLLOWING DEPTHS:

25 cm, 50 cm, 75 cm, 100 cm, 150 cm, 175 cm, 200 cm, 250 cm, 300 cm

APPENDIX B

CELMNPD-RA 31 MARCH 1989

SCOPE OF SERVICES
CULTURAL RESOURCES SURVEY OF
ARLINGTON REVETMENT AND LSU BERM LEVEE
IMPROVEMENT ITEM, EAST BATON ROUGE PARISH

CONTRACT DACW29-88-D-0123
DELIVERY ORDER 08

1. Introduction. This delivery order calls for a cultural resource investigation of two construction easements located adjacent to the Mississippi River in East Baton Rouge Parish, Louisiana (Enclosure 1, 1988 Hydrographic Survey Charts 26-28). The specific reaches of each project alignment are given in Table 1. There is considerable overlap in the two project easements. The project will require survey of approximately 4.9 miles of Mississippi River batture and 4.3 miles of adjacent right-of-way, land side of the levee. Aerial mosaic plans for the two items are attached to this scope of service (Enclosures 2 and 3). The contract period for this delivery order is 241 days.

2. Project Impact. The proposed revetment will directly impact the river's bank line. Both reaches will be stabilized with continuous, articulated concrete mattress which is mechanically laid from the low water line to a point several hundred feet into the river channel. To prepare for revetting, a 200 foot wide corridor adjacent to the bank line will be cleared of all vegetation and graded to a standard slope. Slope grading will remove the upper bank line within a 100 foot wide corridor adjacent to the edge of bank. The grading distance will vary in areas where caving has occurred. Any cultural resource within 200 horizontal feet of the bank line and within 10 vertical feet of the ground surface has a high potential for being destroyed. Surficial resources further than 200 feet from the bank line may be subject to disturbance from the movement of heavy equipment, but buried sites will remain intact.

The LSU Berm Levee Improvement Item is still in design. Two alternatives are being considered to alleviate seepage beneath the levee during high water periods on the Mississippi River. The first alternative involves construction of a berm on the land side of the Mississippi River Levee between Levee Stations 70+00 and 300+00. (See Enclosure 3 for the variable width of the landside right of way. The project easement includes the width of the batture for this same reach.) The berm, a clay blanket, may require landward setback of River Road (Louisiana Highway 327). The second alternative would be construction of periodic relief wells in existing drainage ditches land side of the levee. The batture between river miles 226.9 and 224.7-L was revetted in 1967 without benefit of archeological survey. The levee was upgraded between miles 227 to 218-L, at which time additional borrow pits were excavated along the length of the project batture. Richard Shenkel's reconnaissance survey of portions of the batture is included as Enclosure 4.

Construction of the 4000 foot upstream segment of the Arlington Revetment is scheduled for August 1989. The upper 3000 feet of the downstream segment is scheduled 1991; and the remainder of the right of way may be constructed in the future. The LSU Berm Levee Improvement Item is tentatively scheduled for construction in fiscal year 1991.

3. General Nature of the Work to be Performed. The Contractor is responsible for: a) surveying approximately 4.9 miles of Mississippi River batture and 4.3 miles of land side easement; b) assessing the significance of all previously identified and newly discovered sites and standing structures in the total reach (M-228.1 to 222.2-L); c) predicting the locations of subsurface prehistoric and

historic sites within the total project reach; d) assessing the impact of construction, erosion and overbank deposition to the resources found; and e) preparing comprehensive draft and final reports of investigation for the study.

4. Study Requirements. The work to be performed by the Contractor will be divided into three work phases: Literature Search and Records Review; Intensive Survey and Site Assessment; and Data Analysis and Report Preparation. Accommodation of the 1989 revetment construction schedule requires background research, survey, site testing and draft reporting of the upstream segment of the Arlington Revetment separately from the rest of the project area. Survey of this segment (U-96 to U-38) shall be given priority in the schedule. A management summary of findings will be submitted separately from the draft report of investigation so that the agency and State Historic Preservation Officer can assess the impact of the 1989 construction segment of Arlington Revetment upon any resources found. The data from the management report will then be incorporated into the comprehensive draft and final reports of the investigation for the entire reach.

a. Phase 1: Literature Search and Records Review. The Contractor shall commence, upon work item award, with a literature, map, and records review relevant to the entire project reach (M-228.1 to 222.2-L). This phase shall include but not be limited to review of historic maps, the State Archeologist's site and standing structure files, the National Register of Historic Places, geological and geomorphological data, archeological reports, ethnohistoric records, historic archives, and public records.

At a minimum, the literature and records review will familiarize the reader with the geomorphology (point bars, cutbanks, crevasses, relict channels, etc.) of the study area; establish the distribution of prehistoric and historic sites in the region and their proximity to the project reach; identify previously recorded sites, standing structures, National Register of Historic Places properties and National Landmarks in or in close proximity to the project reach; provide national, regional and local context for assessing the historical, architectural and archeological contribution of all sites and structures located in the project area; and predict resources which can be expected to be located within the various construction easements. Economic and social trends, channel migration, major natural events, and all previous construction affecting land use patterns and the state of preservation of predicted resources will be analyzed and presented. The literature search will place this contract effort within the context of similar work conducted previously along the Mississippi River. The focus of this literature search shall be on man's use of this particular reach of the Mississippi River and its natural levee through time.

b. Phase 2: Intensive Survey and Site Assessment. It is preferred that fieldwork follow completion of the literature search so that all relevant data may be incorporated in the design of the survey or be used in interpreting the sites found. However, fieldwork may commence upon delivery order award to meet the compressed schedule of inventorying the 1989 Arlington Revetment segment should current high river elevations abate and conditions become reasonable to conduct fieldwork.

The survey corridor includes two parallel segments. The riverside survey corridor corresponds to the width of the batture, from the riverside toe of the levee to the low water line of the bank. The landside survey corridor varies in width and is shown on Enclosure 3.

An intensive survey is a comprehensive, systematic, and detailed physical examination of a project item for the purpose of locating and inventorying all cultural resources within the impact zone. The survey will be performed within the context of an explicit research design (to be presented in the report of investigation), formulated in recognition of all prior investigations in the study area and surrounding region, and will include subsurface testing and evaluation of identified resources against the National

specimens, photographs, drawings, etc., utilizing the format currently employed by the Office of the Louisiana State Archeologist. The catalog system will include site and provenience designations. All literature, map search, field and laboratory data will be integrated to produce a single, graphically illustrated, scientifically acceptable draft report discussing the project reach as a single unite. Historic and geomorphological data relevant to the project area are to be analyzed in conjunction with physical data to determine the probable presence of buried resources and the impact of previous construction on such resources. These analyses will be reported within the context of the physical environment of the Mississippi River batture, nineteenth and twentieth century public works construction techniques, current knowledge of site distribution by period and phase on the natural levee, and the body of archeological work conducted on the Mississippi River's natural levee in Louisiana.

Project impacts on all cultural resources located and/or tested by this study will be assessed. The Contractor shall provide justification of the rationale used and a detailed explanation of why each resource does or does not meet the National Register significance criteria (36 CFR 60.4). For each resource recommended as eligible to the National Register and assessed to be impacted by construction, the Contractor shall recommend specific mitigation alternatives. Inferential statements and conclusions will be supported by field, map or archival data. It will not be sufficient to make significance recommendations based solely upon the condition or artifactual content of the site in question. All significance assessments of sites and structures will be stated in terms of the context of similar Mississippi River floodplain sites and the specific scientific contribution of the site, site component or structure which requires protection or mitigation.

5. Reports.

a. Monthly Progress Reports. One copy of a brief and concise statement of progress shall be submitted with and for the same period as the monthly billing voucher throughout the duration of the delivery order. These reports, which may be in letter form, should summarize all work performed, information gained, a characterization of sites found and their significance, and problems encountered during the preceding month. Those monthly reports which discuss survey results will be accompanied with a map of the site locations introduced. A xerox of the appropriate hydrographic survey chart (Enclosure 1) is the preferred base map for such illustration. A concise statement and graphic presentation of the Contractor's assessment of the monthly and cumulative percentage of total work completed by task shall be included each month. The monthly report should also note difficulties, if any, in meeting the contract schedule.

b. Site Forms. The Contractor will fill out and file state site forms with the Office of the Louisiana State Archeologist and cite the resulting state-assigned site numbers in all draft and final reports of this investigation. The Contractor will submit updated state site forms to the State Archeologist for all previously discovered sites. These forms will correct previously filed information and summarize what is known of each resource as a result of this investigation. One unbound copy of each site or standing structure form will be submitted to the COR with the draft report.

c. Management Summary. The contractor will furnish to the COR no later than June 5, 1989, three copies of a management summary discussing the results of survey and site assessment in the 1989 construction segment of Arlington Revetment (Ranges U-96 to U-38). The summary may take the form of an expanded letter report which: discusses in detail the research, survey and testing methods used to study the reach in question; presents the salient environmental and historical data which provides context for interpreting the survey and testing results; presents supportable arguments for or against the assessment of significance for each site or standing structure in the construction segment; and is illustrated with tables and maps showing numbers of sites found, site characteristics, site size, site significance, and precise location with reference to the boundaries of the Arlington Revetment construction segment. The management summary will be accompanied with one unbound copy of each site or standing structure form for the sites discussed in the document.

d. Draft and Final Reports (Phases 1,2, and 3). Five copies of a draft report integrating all phases of this investigation will be submitted to the COR for review and comment 145 days after the date of the order.

An estimate of the acreage surveyed for this project will be given in the report introduction. All sites and standing structures located within the survey corridor will be identified in a table in the introductory chapter by project easement (i.e., the upstream and downstream Arlington Revetment reaches and LSU Berm easement).

The draft and final reports shall include all data and documentation required by 36 CFR 60-63 to prepare requests for Determination of Eligibility to the National Register of Historic Places for those sites recommended by the Contractor as significant. The Contractor shall recommend appropriate mitigation procedures for each significant cultural resource. For those sites considered worthy of additional testing, the Contractor will recommend a specific testing scheme which is appropriate to the site, its physical setting and condition.

In order to preclude vandalism, the draft and final reports shall not contain specific locations of archeological sites.

These written reports shall follow the format set forth in MIL-STD-847A with the following exceptions: 1) separate, soft, durable, wrap-around covers will be used instead of self covers; 2) page size shall be 8-1/2 x 11 inches with a 1-1/2-inch binding margin and 1-inch margins on other edges; 3) the text reference and Reference Cited formats of the Society for American Archaeology will be used. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual, dated January 1973.

The body of each report shall include the following: 1) introduction to the project reach; 2) environmental setting; 3) review and evaluation of previous archeological investigations; 4) distribution of known prehistoric and historic settlement in the study area; 5) research design; 6) description of field and laboratory methodology, statement of project objectives, analysis of effectiveness of methods; 7) data analyses and cultural material inventories; 8) data interpretation; 9) data integration; 10) conclusions; 11) recommendations; 12) references cited; and 13) appendices, as appropriate.

The COR will provide all review comments to the Contractor within 60 days after receipt of the draft reports (206 days after delivery order award). Upon receipt of the review comments, the Contractor shall incorporate or resolve all comments with the approval of the COR. Upon approval the Contractor shall submit one reproducible master copy and 40 bound copies of each report of investigation, and all separate appendices to the COR within 241 days after work item award.

6. Disposal of Records and Artifacts. All records, photographs, artifacts, and other material data recovered under the terms of this delivery order shall be recorded and catalogued in a manner compatible with those systems utilized by the Louisiana SHPO and by State and Federal agencies which store archeological data. They shall be held and maintained by the Contractor until completion of the delivery order. Final disposition of the artifacts and records will be in accord with applicable Federal and State laws. Unless otherwise specified, artifacts will be returned to the landowner or permanently housed with the Louisiana Division of Archaeology and Historic Preservation or in a repository selected of data has been completed and shall forward to the COR a catalog of items entered into curation. The location of any notes, photographs or artifacts which are separated from the main collections will also be documented. Presently existing private archeological collections from the project area which are used in data analyses will remain in private ownership. The Contractor shall be responsible for delivery of the analyzed archeological materials to the individual landowners, the Louisiana SHPO's office, or any

other repository designated by the Government following acceptance of the final report. All artifacts to be permanently curated will be cleaned, stabilized, labeled, catalogued on typed State curation forms, and placed in sturdy bags and boxes which are labeled with site, excavation unit or survey collection unit provenience.

7. Right of Entry. Right of entry for both the Arlington Revetment project and LSU Berm Levee Improvement Project has been obtained by the US Army Corps of Engineers through the Board of Commissioners, Pontchartrain Levee District. All test excavations will be held to the minimum required to determine the existence or nonexistence of significant cultural remains. The area will be left in a condition comparable to that prior to the work. No roads, fences, buildings, or other improvements within the area will be disturbed.

8. Payments. Partial payment will be made up to seventy-five (75%) upon submission of proper invoices and acceptance of the draft report by the COR. The draft report will be accepted when the COR determines that it substantially meets all the requirements of the scope of service. The balance of the delivery order amount will be paid upon receipt of proper invoices and the Government's acceptance of all final products.